

MAY
1955

THERE'S A PHILIPS VALVE FOR EVERY SOCKET

Amateur Radio

Hot off the
production line!

PHILIPS
TYPE

6146

ideal for

Hams • Mobile Communications
Base Stations • Low frequency stages
in broadcasting transmitters • Medium to high
power PA systems

The versatility of Philips type 6146 tube has already made it famous overseas. Check its performance and you'll see why! Under I.C.A.S. conditions a pair in class AB1 will give 120 watts of audio — and it's an efficient tube up to 175 MCs. The wide range of applications of the Philips type 6146 makes it a tube to remember!



Write for information and data sheets

PHILIPS ELECTRICAL INDUSTRIES PTY. LTD.

69 Clarence Street, Sydney, N.S.W. :: 590 Bourke Street, Melbourne, Victoria
148 Edward Street, Brisbane, Queensland :: 381-5 Murray Street, Perth, W.A.
119 Grenfell Street, Adelaide, S.A.

PV1-55.



1/-

Registered at G.P.O., Melbourne, for
transmission by post as a periodical

**THE BEST BY TEST FOR HIGH GAIN
AND HIGH LEVEL AMPLIFICATION**

"HAM" RADIO SUPPLIERS

(KEN MILLBOURN, PROP.)

5A MELVILLE STREET, HAWTHORN, VICTORIA

North Balwyn Tram Passes Corner, near Vogue Theatre.

Phone: WA 6465

Money Orders and Postal Notes payable North Hawthorn P.O. Packing Charge on all goods over 10 lbs. in weight, 5/- extra.

Command Transmitters: Freq. 4—5.3 Mc., 5.3—7 Mc., or 7—9 Mc. Complete with valves and crystal £27/10/-

AT5 Transmitters, covers low freq. bands, also bandswitched 3 bands 2-20 Mc. using 6V6 M.O./xtal osc., 807 buffer/doubler, pair 807s in parallel; 6V6 grid modulator. All stages metered with 0-5 Ma. meter (250 Ma. F.S.D.); complete with all valves, gift at £9.

AT5-ARS Junction Box and Cables, £2/10/-

AR8 Cables 7/6 each

AT5-ARS Aerial Coupling Units, contain one 0-5 Ma. meter ext. thermo couple, single gang variable condenser, keying relay, aerial change-over d.p.d.t. 12v. 48 ohm relay, etc. Ideal for wrecking £2

Audio Filter FL8A, peaked at 1,000 c.p.s. Contained in metal case with input and output phone plugs. Ideal for c.w. reception. A Gift at 25/- each

Aust. Wavemeter Type AWB1, high freq. 145 to 165 Mc. approx. Valve line up: 958 diode connected into two type 1N5 valves cascade connected d.c. amp. Complete with spare set of valves and 3" 0-1 Ma. meter. Circuit enclosed. Contained in flat grey metal carrying case. Packed ready for rail, £6/5/-

Bendix RA1B Power Supplies, 240 volt AC, 24v. at 1 amp. output 250v. HT, £5 each.

American L.F.F. Units, complete with Valves, less Genemotor £4/17/6 each

Genemotor Power Supply, SCR522, 24v input, 150v. and 300v. output at 360 Ma. Includes relay, voltage regulator, etc. A gift at 35/-, Too heavy for postage.

Meters—0-5 Ma., square type, new 27/6

Meters—0-5 Ma., 2" round, scale 0-15, 0-250 Ma., A.W.A. AT5 type, less ext. shunt, 25/-

Meters—0-40, 0-120 Ma., separate connection, new 27/6

Meters—0-20 volt, 5 Ma. movement, square type, 2 inch, new 15/-

Meters—0-2.5 Amp. R.F., square type, 2 inch, new 15/-

Meters—0-5 Ma., 1½ Ma. movement, round type, 2 inch, new 22/6

Solor 28 pF. silver plated wide-spaced Condensers 7/6 each

2 uF. 1000v. block type Chamec Cond., 12/6

Relays, A.W.A. Aerial Change-over type, 12 volt 27/6

English Carbon Mike Transformers, new, 5/-

Loekalt Sockets 1/6 each

Valve Sockets, ceramic, 8-pin Octal 2/6

Shielded Cable with two 15-pin Plugs 7/6

Five-core Cable, not shielded 8d. yard

Co-ax Connectors, Ampenol type, male and female 7/6 pair

Co-ax Connectors, male/female, small Pi type, new 2/6 pair

Co-ax, indoor type, cotton covered 1/- yd.

Co-ax Cable, any length 2/- yd.

Output Transformer, well known make, 6,000 ohms c.t. to 600 ohms, 40 Ma. Max. level 36 db. N.F. to clear 35/-

NEW VALVES

1K4	5/-	6SS7	12/6
6C3*	7/6	6U7G	10/-
6C8G	7/6	7A4	5/-
6F5*	7/6	7B8	5/-
6F6*	10/-	12A6*	10/-
6K6G	7/6	12K8*	10/-
6K7*	10/-	12SJ7*	10/-
6K7G	7/6	12SK7*	10/-
6L7*	10/-	12SK7*	10/-
6L7G	7/6	807	25/-
6N7*	10/-	832A	70/-
6R7G	10/-	83A	20/-
6SA7*	10/-	866	20/-
6SC7*	10/-	1025	25/-
6S8JGT	12/6	5763	25/-
6SK7GT	12/6	EF50	10/-
884	3d	Triode	25/-
954	American		10/-
955	American		10/-
957	Acorn Triode, Filament: 1.25v. at 50 Ma., plate current 2 Ma. Ideal for portable equipment 10/-		

* Metal Tube.

TESTED VALVES EX DISPOSALS GEAR

1A3	10/-	7C5	5/-
1A5	10/-	7C7	5/-
1K5	7/6	7F7	5/-
1K7	7/6	7G7	5/-
1L4	10/-	7N7	5/-
1S5	10/-	7W7	5/-
2A3	10/-	7Y4	5/-
2X3	10/-	12AH7	10/-
3A4	10/-	12C8	10/-
3Q5	10/-	12J5	10/-
6AC7	10/-	12SG7	10/-
6AG5	15/-	12SQ7	10/-
6BE6	15/-	807	10/-
6C4	12/6	809	50/-
6C6	7/6	813	60/-
6F8	10/-	815	50/-
6H6	5/-	829	60/-
6J5GT	10/-	832	50/-
6N7	10/-	956	10/-
6N8	15/-	1625	15/-
6SA7	10/-	1626	10/-
6SH7	5/-	1629	10/-
6SH7GT	4/-	2051	10/-
6SJ7	10/-	7193	5/-
6SK7	10/-	9002	10/-
6SL7	15/-	9003	10/-
6SN7	10/-	9004	10/-
6V6	10/-	EF50	7/6
7A6	5/-	OA4	10/-
7A8	5/-	VR150	15/-

Command Receivers, 3 to 6 Mc., and 6 to 9 Mc. less genemotor; air tested £7/10/-

Command Receivers, 150—550 Kc. £9/10/-

AR8 Receivers, 11 valves, 6 bands, continuous coverage 150 Kc.—25 Mc., B.F.O., audio controls, calibrated dials £15

AR301 High Freq. Receiver, uses three 954s, one 955, six 6AC7 L.F. stages at 30 Mc. Easily converted to 144 Mc. Complete £6/10/-

BC733D Crystal Locked Receiver, Tuning range 108 to 120 Mc. L.F. freq. 6.9 Mc. Valve line up: three 717A, two 12SG7, one 12SH7, two 12SR7, one 12SQ7, one 12A6. Also contains six miniature relays. Packed ready for rail. One Price £7/10/- each

American Low Freq. and Broadcast Band Receiver R.A.X., 7 valves, 4 bands: 200-300 Kc., 300-500 Kc., 500-900 Kc., 900-1500 Kc. L.F. freq. 160 Kc. Calibrated vernier dial, etc. Ideal Q5'er. Complete with 24 volt genemotor £17/10/-

Six volt bayonet type Dial Lamps 1/- each

Coils, small slug-tuned type, suitable for Converters, etc. 3/6

American Headphones, low impedance, complete with Cable 25/-

Phone Plug and 4 ft. Cable, American 4/6

2.5v. Filament Transformers 15/-

4v. Filament Transformers 15/-

LARGE STOCK OF CRYSTALS

100 Kc. R.C.A. Crystals £4

1,000 Kc. Crystal mounted in case with 10-pin valve socket and 4-pin Continental power plug 35/-

Marker Crystals, 3.5 Mc., 5 Mc., and 10 Mc. Crystals ground to any frequency. Price on request.

Following is a list of Crystal Frequencies available for immediate delivery, £2 each—

500 Kc.	5170 Kc.	7096 Kc.	8176.923 Kc.
775 Kc.	6000 Kc.	7097 Kc.	8182.50 Kc.
1777.5 Kc.	6200 Kc.	7100 Kc.	8183.5 Kc.
2075 Kc.	7010 Kc.	7109 Kc.	8317.2 Kc.
2716 Kc.	7012 Kc.	7118 Kc.	8318 Kc.
2482.5 Kc.	7013 Kc.	7121 Kc.	8320 Kc.
3503 Kc.	7020 Kc.	7125 Kc.	8488 Kc.
3509 Kc.	7021 Kc.	7126 Kc.	8500 Kc.
3511 Kc.	7022 Kc.	7130 Kc.	9125 Kc.
3512 Kc.	7023 Kc.	7134 Kc.	10 Mc.
3515 Kc.	7031 Kc.	7145 Kc.	10.311 Mc.
3516 Kc.	7032 Kc.	7156 Kc.	10.324 Mc.
3528 Kc.	7032.6 Kc.	7163 Kc.	10.530 Mc.
3532 Kc.	7048 Kc.	7174 Kc.	10.536 Mc.
3532 Kc.	7052 Kc.	7179 Kc.	10.544 Mc.
3539.3 Kc.	7062 Kc.	7202.3 Kc.	10.546 Mc.
3634 Kc.	7083 Kc.	8000 Kc.	10.563 Mc.
3640 Kc.	7084 Kc.	8017.5 Kc.	11 Mc.
3675 Kc.	7068 Kc.	8027 Kc.	12.803 Mc.
4285 Kc.	7072 Kc.	8028.5 Kc.	14.020 Mc.
4600 Kc.	7089 Kc.	8092 Kc.	14.105 Mc.
4600 Kc.	7090 Kc.	8155.7 Kc.	14.325 Mc.
5000 Kc.	7093 Kc.	8171.250 Kc.	14.322 Mc.

WANTED TO BUY—RADIO PARTS, VALVES, TRANSFORMERS, RECEIVERS, TRANSMITTERS, ETC.

AMATEUR RADIO

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

EDITOR:

T. D. HOGAN, VK3HX.

MANAGING EDITOR:

J. G. MARSLAND, VK3NY.

TECHNICAL EDITOR:

K. E. PINCOTT, VK3AFJ.

TECHNICAL STAFF:

J. C. DUNCAN, VK3VZ.

A. K. HEAD, VK3AKZ.

D. A. NORMAN, VK3UC.

COMPILATION:

R. W. HIGGINBOTHAM, VK3RN.

CIRCULATION:

I. K. SEWELL, VK3IK.

ADVERTISING REPRESENTATIVE:

BEATRICE TOUZEAU,
96 Collins St., Melbourne, C.I.
Telephone: MF 4505

PRINTERS:

"RICHMOND CHRONICLE,"
Shakespeare St., Richmond, E.I.
Telephone: JB 2419.

MSS. and Magazine Correspondence should be forwarded to the Editor, "Amateur Radio," C.O.R. House, 191 Queen Street, Melbourne, C.I., on or before the 8th of each month.

Subscription rate in Australia is 12/- per annum, in advance (post paid) and A15/- in all other countries.

Wireless Institute of Australia
(Victorian Division) Rooms' Phone
Number is FJ 6997.

WI BROADCASTS

All Amateurs are urged to keep these frequencies clear during, and for a period of 15 minutes after, the Official Broadcasts.

VK3WI: Sundays, 1100 hours EST, 7145 Kc. and 2000 hours EST 90 and 144 Mc. No frequency checks available from VK3WI. Intrastate working frequency, 7158 Kc.

VK3WV: Sundays, 1130 hours EST, simultaneously on 3870 and 7145 Kc., 9100 and 148.25 Mc. Intrastate working frequency 7158 Kc. Individual frequency checks of Amateur Stations given when VK3WI is on the air.

VK4WI: Sundays, 0900 hours EST, simultaneously on 3500 and 14345 Kc. 3580 Kc. channel is used from 0915 hours to 1015 hours each Sunday for the W.I.A. Country hook-up. No frequency checks available.

VK3WI: Sundays, 1000 hours EAST, on 7145 Kc. Frequency checks are given by VK3MD and VK3WI by arrangements on all bands to 50 Mc.

VK3WI: Sundays, 0930 hours WAST, on 7145 Kc. No frequency checks available.

VK3WI: Sundays, at 1000 hours EST, on 7145 Kc. and 144.5 Mc. No frequency checks are available.

Published by the Wireless Institute of Australia,
C.O.R. House, 191 Queen Street,
Melbourne, C.I.

EDITORIAL



THE YEAR AHEAD

I feel it is my duty as Federal President to give you a brief account of the work before the Federal Executive for the next twelve months. I would first like to inform you that your Executive are all men with wide administrative experience in public, civil and service affairs and you have our collective assurance that we shall do our utmost during the year to further the interests of the Institute as a whole. All members of the W.I.A. should be well aware that in both the Federal and Divisional spheres, our organisation is administered by volunteers. The corollary is that these men must give first attention to their civil and public vocations. It is then important that what time is available for our hobby is used to the best advantage and not frittered away in fruitless argument or internecine strife. We should apply ourselves with diligence and zeal to the tasks in hand and endeavour to be mutually helpful so that profit and pleasure may be the eventual result. This has been and will continue to be, the "motif prime" of your Executive.

There are many large problems facing your Executive. Too often in the past, though not from choice, it has been "boggled down" with administrative detail when the time should be devoted to more important and more urgent problems. I suggest Divisions can relieve quite a lot of this burden by familiarising themselves with the contents of the Constitution and the Policy Book. Our normal tasks of preparing and presenting your representations to the

proper authorities can also be effected more expeditiously if they are presented to us in the correct constitutional manner. Needless correspondence can be avoided and I do enjoin all Divisional Councils to give first priority to matters requiring a vote of Federal Council. These votes are too often unnecessarily delayed resulting in further delays before an official decision is made by the authorities concerned.

Every member should know of the correct channels through which he can express his opinions and present problems. This channel is through his Divisional Council via his Federal Councillor to Federal Executive where a Federal Council vote is called for or alternatively, presented to the authorities depending on the circumstances. In this way, a member may have the whole weight of Institute opinion behind him rather than the individual unconstitutional direct approach, which is regarded officially as a "voice crying in the wilderness." Do please adopt the correct channel as a member, when your Executive can pursue your proposal to a successful conclusion with all the vigour and force at its disposal.

Without encroaching too far into your retiring President's territory in relating to matters of the last year, it is indeed gratifying to see the Short Wave Listeners' Section of the W.I.A. growing so quickly. It is from the ranks of these young men that so many of us graduated to our present status, and I would like to see them encouraged and helped as much as

(Continued on Page 13)

THE CONTENTS

A Discussion of Receiver Performance	2	Fifty Megacycles and Above	10
Amateur Call Signs for January	5	Worked All VK Call Areas (W.A.V.K.C.A.) Award	12
Seventh Annual Urunga Convention	7	Short Wave Listeners' Section	13
DX Activity by VK3AHH	9	Federal, QSL, and Divisional Notes	15
Prediction Chart for May, 1955	9		

A Discussion of Receiver Performance

Some Fine Points and Unsolved Problems of Receiver Design

BY E. W. PAPPENFUS, W0SYF

SINCE good communication super-heterodyne receivers have been available for about 20 years, it is surprising that there is anything left to discuss about this line of equipment. However, the large number of letters that are written to the manufacturers questioning receiver performance points to the need for a discussion of the action of a receiver under certain conditions. These include weak-signal reception as well as performance in the presence of a very good signal. Many Amateurs feel that there is no need to miss a QSO because a signal is weak. They feel that if a signal can't be read, it is strictly the fault of the set design. At the same time, it is hard for many radio operators to understand why a receiver cross-modulates and blocks when the kilowatt station next door comes on the air. As you may guess, this is a discussion of the reasons why a receiver is not all the Amateur expects and perhaps also a defence of receiver design.

The subjects to be discussed include receiver sensitivity, signal-to-noise ratio, noise figure, cross-modulation and blocking. It is self-evident that a receiver for Amateur use, and particularly for DX, must have a great deal of inherent amplification. The ability of a receiver to make a lot of sound in the loud-speaker with a very weak signal is called "sensitivity". High sensitivity in a receiver is a necessary, but not sufficient, definition of weak-signal receiver performance. "Signal-to-noise ratio" is also very important.

It is not quite as apparent that a good communications receiver must be free from overloading or cross-modulation when strong signals are present. These undesirable effects are generally overlooked in the general confusion and congestion of the present-day Amateur bands. It must be admitted that the modulation splatter blamed on the local Amateur at the other end of the band is sometimes generated in the receiver. It is unfortunate that a receiver designed for very good weak-signal performance should have difficulty with extremely strong signals. This, however, is the case, and it is an area in which an engineering compromise must be reached. Like most compromises, it is open to argument, and there is no completely clinching evidence to prove that the receiver design was right. The compromise involves r.f. stage gain, a.v.c. characteristics, r.f. selectivity, type of r.f. tubes, type of mixer tube, and mixer noise. With all of these balancing factors it may be seen that it is not an easy decision for the set designer.

The signal-selectivity chart for a 75A-3, shown in Fig. 1, will help to explain some of the items discussed previously. In developing this chart, a signal generator was set for a conven-

● Here is an article on receivers that anyone with the slightest interest in "why" should not pass up. It won't tell you how to build anything, unless you read carefully between the lines, but it will certainly help you to understand some effects that may have been a mystery up to now.

ient level at the antenna and then moved back, stage by stage, toward the diode detector. The signal generator output was adjusted to hold constant diode-load voltage at each point in the circuit and, of course, the frequency was changed appropriately at the i.f. amplifier. The signal generator was then returned to the antenna terminals and increased to simulate a stronger signal. Again the signal generator was moved toward the second detector holding diode-load voltage constant. Moving the signal generator along, stage by stage, is equivalent to a voltage measurement at that point. A family of curves was generated, as shown, that gives a complete picture of receiver performance with various r.f. input levels. A change in gain is represented by a change in slope of the curve. Note the constant gain of antenna link to first r.f. grid, and the reduction in gain due to a.v.c. in the first r.f. stage and the i.f. amplifiers. It is clear how the gain of the five controlled stages changes to hold the diode-load voltage almost constant.

A.V.C.

The basic function of automatic volume control in a receiver is to keep the diode-load voltage constant and thus

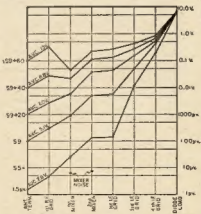


Fig. 1.—A signal-level chart of the 75A-3 receiver, showing the signal levels that exist through the receiver for various input signals and bias voltages.

hold constant audio output for changing signal levels. This is apparent from Fig. 1, because the diode-load voltage does not rise appreciably above 8 volts as the signal level is changed from 1.5 to 100,000 microvolts. This constancy of receiver output voltage does not tell the whole story, however. It is important to "delay" the application of a.v.c. voltage until a suitable signal-to-noise ratio is reached. This allows the receiver output to increase in a linear manner with input signal level so that receiver noise is rapidly overcome. In the 75A-3 the a.v.c. does not become effective until the input signal is about 1.5 microvolts. In addition, some sets delay the application of a.v.c. voltage to the r.f. stage until even higher signal levels are reached. This also contributes to a linear improvement in signal-to-noise ratio as the input signal is increased above the a.v.c. threshold. As an example of delayed a.v.c. action, if a 2-microvolt signal gives a 10-db. signal-to-noise ratio, then a 20-db. increase to 20 microvolts will give a 30-db. signal-to-noise ratio. A 10-db. signal-to-noise ratio provides a good readable signal, but a signal with less noise is more enjoyable and less tiring to the operator.

By dividing the a.v.c. voltage applied to the r.f. stage in the 75A-3, suitable action is obtained without separately delaying the r.f. stage a.v.c. voltage. Since a sharp cut-off tube is used in the 75A-3 r.f. stage, there is a secondary reason to limit a.v.c. voltage to this tube. A 6BA6 is a better tube for a.v.c. action, but unfortunately it is a very noisy tube compared with the 6CB6 that is used.

Manual gain in the 75A-3 operates on the a.v.c. line, just as the automatic volume control does. This means that the gain distribution is proper for any reasonable setting of the manual gain control. It is possible to degrade the signal-to-noise ratio with manual gain control if too much gain-adjusting action is applied to the r.f. stage, so that mixer noise is proportionally larger. Noise tests on a receiver should be made at various signal levels to insure that manual gain control is applied to the proper stages.

WEAK SIGNALS

It is possible to put a large amount of over-all amplification in a receiver because the amplification at a given frequency can be held to a manageable level through the use of the super-heterodyne principle in single or multi-conversion (75A) schemes. The gain from antenna to loudspeaker in a typical communications receiver may be as great as 10 million, but all this gain does not permit the Amateur to copy a weak DX station unless the noise contributed by the antenna coupling circuit, the first r.f. tube shot noise, mixer noise, etc., is held to a low value. That

is the reason receiver performance is specified by **signal-plus-noise-to-noise ratio**.

A signal generator modulated 30 per cent. at 400 c.p.s. (to simulate a speech signal) is fed into the receiver antenna terminal. The proper resistor is placed in series to match the receiver input impedance. The signal generator output is increased until there is a 10-db. increase in the reading of an output meter connected to the receiver audio over the level present when the modulation is switched off. This means that the signal (modulated portion) plus noise is 10 db. stronger than the noise level is acceptable for voice communications, hence the justification for this value. A good c.w. operator can copy signals with a lower signal-to-noise ratio, but the lower the signal-to-noise ratio, the more expert the operator must be.

It is dangerous to generalise, but it is possibly safe to say that any Amateur receiver with a 10 db. signal-to-noise ratio at from 1 to 3 uv. is in the high quality class. Noise-figure test of receiver performance make use of a noise diode and are the only real means of comparison between receivers of different bandwidth, because receiver noise voltage varies proportionally to the square root of the bandwidth. A narrow-band receiver should not be compared directly with a wide-band set. Noise figure expresses the ratio in db. between the noise level of the receiver under test to a so-called perfect receiver in which all noise is assumed to be generated in the dummy antenna due to its thermal noise.

It can be shown that a perfect receiver with 6 Kc. bandwidth and 100 ohm input would require 1.4 uv. to have a 10 db. signal-plus-noise-to-noise ratio. This receiver when operated with a dummy antenna matching the receiver input impedance has a 3 db. noise figure. It is theoretically possible to improve the noise figure by mismatching the antenna, but this is not important from a practical standpoint in the Amateur bands from 10 to 160 metres, because the antenna impedance cannot be predicted accurately. Again a compromise in design results, and a 100 ohm input impedance was selected for the 75A-3. Since signal generators are generally available and noise diodes are not, it is customary to use the signal generator method with 10-db. signal-plus-noise-to-noise as the standard of comparison between receivers. Incidental frequency modulation in the signal generator can cause errors, particularly at high frequencies, and should be guarded against.

Noise in a receiver results from so-called thermal-agitation noise in the input circuit, shot noise, mixer noise and amplifier noise. Pentagrid mixers are particularly noisy tubes, but they are advantageous because of the ease with which the oscillator can be fed into the mixer and the freedom from coupling of oscillator voltage to the signal grid.

If enough gain-producing elements precede the mixers, then the mixer noise can be neglected. Since the greatest gain exists from the grid circuit of

the first r.f. amplifier to the receiver output, it is logical to expect this noise to be louder than any other receiver noise. This is not always true, but in a properly designed receiver the input noise makes the greatest contribution to over-all receiver noise. This can be demonstrated by peaking the grid circuit, with a resistor of proper value across the antenna terminals. A rise in receiver noise output when the first r.f. tank circuit is tuned compared with the completely detuned condition indicates the proper gain distribution. A drop in noise level as the first r.f. tube is removed also shows that the mixer noise is not an important factor in over-all receiver signal-to-noise ratio. Two r.f. stages are generally not required to approach the ideal weak-signal receiver performance, because a single stage using a high transconductance tube will amplify the signal sufficiently to override the mixer noise. The chart of Fig. 1 shows the equivalent noise present at the mixers. The gain here appears sufficient to override completely the mixer noise with 1.5 uv. input.

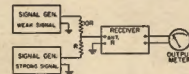


Fig. 2.—The cross-modulation effects in a receiver can be measured by using two signal generators connected as shown here.

If this peaking effect of noise with antenna terminals properly loaded with a resistor is not found, then the antenna coil gain, antenna circuit Q or r.f. amplifier gain should be adjusted until the receiver noise is dominated by the receiver input noise. Only then can the operator say that his receiver is able to hear the weakest stations. This actually is a rather theoretical consideration because of the large amount of static and interference prevalent, except perhaps on the 10 metre band. When the weakest reading on the S meter across the entire 20 metre phone band is S6 to S9, because of a solid array of strong signals, obviously receiver noise is not then the limiting factor. Receiver bandwidth is much more important. Atmospheric and man-made static on the antenna also limit the signals that can be copied. Only rarely can the full signal-to-noise capabilities of a receiver be used. This can be checked by tuning to an unused portion of the band (that's a joke, son) and then removing the antenna from the receiver and replacing it with the equivalent resistance. If the receiver noise output drops, then the antenna noise is the limiting factor and not the noise developed within the receiver.

STRONG SIGNALS

For the reception of strong signals, an additional receiver requirement is added. Radio frequency voltages applied to any stage of the receiver must not exceed the bias for that stage with any signal ordinarily encountered. Fortunately, the receiver a.v.c. voltage increases the bias applied to each stage

and at the same time reduces the gains through the receiver when strong signals are tuned in.

Five controlled stages are used in the 75A-3 a.v.c. circuit. By removing one controlled stage or by reducing the proportion of a.v.c. voltage fed to a stage, it is possible to change the receiver gain distribution. The set designer has this "handle" by which he can set the gain curve to the desired shape. The curves of Fig. 1 show sufficient r.f. gain adjustment so that the mixers are protected from large signal voltages for any signal within the range of the S meter. Because mixers are somewhat critical in the application of bias, the first and second mixers are omitted from the controlled circuit and set at a suitable bias by voltage drop across a cathode resistor. The exact gain distribution within a receiver is not critical within the limitation that all stages must be held below the over-load region with the highest signal level ordinarily encountered.

Strong signals outside the passband can reduce the set gain if rectified grid current flows in any stage which can charge up the a.v.c. line. A decoupling resistor and a low-resistance a.v.c. line minimise this effect.

Representative voltages for 0.5 volt input are 1.5 volts on the r.f. grid and 1.1 volts on the second mixer grid. At these voltage levels the mixer draws grid current and its conversion gain is reduced. The overload point for a receiver is defined as that input level at which a 6 db. drop in audio output occurs compared with the maximum audio output as the input signal is increased. Overload point for the 75A-3 is at 1.4 volts. A small amount of grid current in the mixer is not serious, as indicated by the fact that the overload point is well above the input at which the peak r.f. grid voltage applied to the second mixer exceeds its bias.

All a.s.b. operators will cry out loudly at the above statement. It is possible to tolerate grid current in a receiver mixer because the performance standards are so much lower than in linear amplifiers. In a s.s.b. transmitter it is desirable to keep intermodulation products down 30 db. Harmonic distortion of the signal in a receiver can be tolerated if it is 10 to 20 db. below the signal level. This explains the ability of the receiver mixers to operate satisfactorily with small positive grid voltages.

For the reception of weak signals described earlier, it is desirable to have as much gain as possible ahead of the mixers. This would insure that the signal level would be strong enough to override completely the noise from the pentagrid mixers. However, from the standpoint of strong signals, it is desirable to have low amplification until the selectivity of the receiver is effective. This would insure that only signals in the i.f. passband would tend to overload the set and these could be more readily accommodated by the high a.v.c. bias and gain control that is effective in the i.f. amplifier. These requirements for no amplification ahead of selectivity for strong signal reception and high gain in the antenna circuit and r.f. stage for weak signal reception are in direct conflict. It is fortunately possible to make an engineering compromise that will

† Goodman, "How Sensitive Is Your Receiver?" "QST," Sept., 1947.

ZEPHYR MICROPHONES



"THE MICROPHONE THAT SPEAKS FOR ITSELF"

TYPE "80"

A high quality Moving Coil Microphone of striking appearance and fidelity.

- Ideal for transmission of voice or music.
- Good appearance.
- Solid cast case, finished in stoved black enamel, full tilting head.



TYPE "80"
MOVING
COIL

TYPE "8XA"

A quality Crystal Insert with "Zephyr" filter.

- Durable chrome steel case.
- Hand or stand pattern.
- Good high frequency response.
- Full tilting head.



TYPE "8XA"
CRYSTAL



TYPE "40"
RIBBON

TYPE "40"

A high grade Studio Microphone, reasonably priced, for those requiring high fidelity.

- Imported magnets, highly efficient generator.
- Fully protected against dust and filings.
- Rotatable cage—360°.
- Chrome copper cage, black bakelite base, and steel gimbles.

TYPE "90"

Precision built Moving Coil Generator provides good quality reproduction.

- Light weight, durable chrome and baked enamel metal case.
- Full tilting head.
- Excellent sensitivity.
- Robust construction.



TYPE "90"
MOVING
COIL

AUSTRALIAN MADE — — FOR AUSTRALIAN CONDITIONS

Manufactured by—

ZEPHYR PRODUCTS PTY. LTD.

58 HIGH STREET, GLEN IRIS, VIC.

(Box 2, Armadale P.O., Vic.)

Phone: BL 1300

AVAILABLE FROM ALL LEADING TRADE HOUSES

accommodate the majority of operating situations which confront the Amateurs. Weak signals can be handled by using just enough r.f. stage gain to override the mixer noise by about 6 db. or slightly more.

CROSS-MODULATION

When the receiver is tuned to a weak signal, and a strong signal is present outside the i.f. passband, then a different condition prevails than in the strong signal case outlined above. There is very low a.v.c. bias generated to protect the grids of r.f. and i.f. amplifiers from grid current and only moderate gain reduction to prevent strong signals from stage to stage in the receiver.

The only gain-reducing elements present are a small amount of a.v.c. bias generated by the desired signal, and the selectivity of the r.f. and variable i.f. coils in double conversion receivers. The selectivity of these coils determines the r.f. voltage applied to mixers and i.f. amplifiers. With very large signals applied to any stage of the receiver, nonlinear operation causes modulation components of the strong signal to appear on the weak signal. This, in effect, means that strong phone signals outside the selectivity curve of the i.f. amplifier can still be heard. The term "cross-modulation" has been applied to this effect.

Cross-modulation in a receiver is measured by a laboratory set-up as shown in Fig. 2. Two signal generators are used to simulate the two signals. One signal generator feeds the receiver through a resistor equal to the input impedance while the other signal generator feeds through a resistor of ten times the input impedance. The resulting impedance is then very close to the matching value. The signal generator feeding through the large resistor is set for a value of r.f. that will produce an antenna terminal signal of, say, 10 μ v. (approximately 86) at receiver centre frequency. The audio output is measured and signal generator modulation is removed. The second signal generator is then turned on and adjusted for 30 per cent. modulation. At various frequencies the receiver centre frequency the i.f. level from the second signal generator is increased until the receiver audio output is 10 db. less than that measured with first signal generator.

A plot of these values for the 75A-3 operating at 4.0 Mc. is shown in Fig. 3. Adjusting signals of 89 plus 40 db. can interfere if they are very close to 15 to 20 Kc. from the desired signal. Approximately 50 Kc. separation is required for signals that are 60 db. above 89. The cross-modulation curve of Fig. 3 is an inverse composite of the receiver input selectivity. The lower part of the curve is determined by the selectivity of the receiver circuits to the second mixer grid and the upper part of the curve is shaped by the selectivity to the first mixer grid. The r.f. stage is never responsive for cross-modulation below 1 volt r.f. on the antenna for a 10 μ v. desired signal level. The portions of the curve at which the first and second mixer respectively contribute to the cross-modulation are indicated. A portion of the curve entitled "both" is a transitional area in which both mixers contribute to cross-modulation.

The application of a.v.c. voltage to the r.f. stage reduces its gain and helps protect the subsequent stages from excessive voltages. The matter of cross-modulation characteristics of an r.f. tube is extremely complicated, so just taking a given tube and applying a.v.c. bias is not the whole answer. There is no substitute for a large number of cross-modulation tests to determine proper r.f. stage conditions. There does not seem to be a receiving tube available that possesses the extremely large signal-handling capabilities required. Several tubes recently announced show some promise, but until they are proven, the receiver designers laughingly suggest a 4-125A or similar for the receiver r.f. stage.

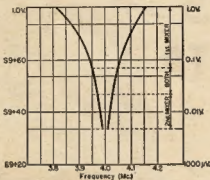


Fig. 3.—The cross-modulation characteristic of the 75A-3 receiver, with the receiver tuned to 4.0 Mc.

To prove cross-modulation when operating "on the air," the received signal can be reduced with a 20 db. resistive attenuator. This will reduce an 89 signal to about 86, which is still readable, but at the same time drop a 1-volt signal, due to that kilowatt next door, to 0.1 volt. If the splatter disappears when the attenuator is placed in the antenna lead, then the difficulty is in the receiver. Remember not all modulation splatter is in the receiver. A few inconsiderate Amateurs are guilty of severe overmodulation.

A more simple test is to remove the normal antenna and connect any short piece of wire that will reduce the desired signal to a just readable level, and then note the presence or absence of splatter. Either test is acceptable for tracing the source of this type of interference.

If you are not looking for weak signals, either of the above methods for reducing input signal level can help receiver cross-modulation. A separate r.f. gain control (variable cathode resistor) is also sometimes helpful in reducing the cross-modulation that occurs in the mixers.

This receiver discussion has been handled in general terms. A later article will give some hints as to how the 75A-3 can be adapted best to serve the Amateur with special interests like DX work on one hand or just local ragchewing on the other.

I would like to express my appreciation to the many Collins engineers who assisted in this discussion of receiver performance.

AMATEUR CALL SIGNS

FOR MONTH OF JANUARY, 1955

NEW STATIONS

- VK—
New South Wales
2ABV—C. E. J. Sims, 2 Verlie St., Merrylands.
2ABX—C. H. A. Armstrong, The Caravan Park, Wagon, Waggon.
2ATN—J. G. Barron, Flat 2, "Exeter Manor," 78 Macquarie St., Parramatta.
2AWN—W. J. Cohen, 21 Hinkler Cres., Lane Cove.
2AXT—A. R. J. Topp, 33 Western Rd., Parramatta.
2ZAF—J. P. Folkard, 30 Cliveville St., Watsons Bay.
2ZAG—J. Cook, 189 Ironside Rd., Waverley.
2ZAV—W. J. Lark, 34 Church Ave., Westmead.

Victoria

- 31B—A. C. Hawker, 75 Lloyd St., Dimboola.
31G—J. H. Jones, 25 Hamed St., Box Hill.
31H—L. Brehaut, 29 Clyde St., Oakleigh.
31T—G. F. Millard, 10 Dawn St., South Melbourne.
3ADL—C. Luckman, 2 Millon St., Canterbury.
3ALM—R. E. A. Grigson, 14 Grace St., Melbourne, E.A.
3AQJ—J. R. Fryer, 434 Plenty Rd., Preston, N.B.
3AVS—M. Strohfeldt, 13 Lindsay Ave., Murrumbidgee.
3AXG—J. M. Gibson, 31 Dawn St., Highett.

Queensland

- 4ZAG—M. F. McManus, 73 Sylvester St., Windsor.

South Australia

- 5AE—F. A. Eastick, Station: Administration House, Cr. Todd St. and Stott Tce., Alice Springs, N.T.; Postal: C/o P.O., Alice Springs, N.T.
5KS—R. A. Sedunary, 51 Gertrude St., Glenore.
5ST—R. T. Southwood, C/o Dept. of Civil Aviation, Box 25, Tennant Creek, N.T.
5WB—W. S. Beany, 83 Glenlyne Tce., Plympton.
5ZAG—L. M. McGrath, 14 Tallara Ave., Mount Gambier.
5ZAX—W. G. Wehr, 20 Kintore Ave., Prospect.

Western Australia

- 6HM—C. W. E. Holman, C/o Radio Station GNA, Narrogin.
6ZAV—D. F. M. Brown, "Valona," Coode St., Bayswater, Perth.

Tasmania

- 7VB—L. L. Griffin, Alexander St., Cornwall.

Territories

- 1EM—E. L. Macklin, Mawson, Antarctica.
1RA—R. W. Allison (Dr.), Mawson, Antarctica.
5RO—R. M. Ellison, S.D.A. Mission, P.O. Box 77, Wau, N.C.

CHANGES OF ADDRESS

- VK—
New South Wales
2QL—F. T. Hine, 30 Abbotford Rd., Hornsby.
2QF—L. W. Hughes, 64 Lowry St., East Bankstown.
2ACV—A. G. Mulcahy, Station: S.S. "Koorathra," Postal: Mulcahy, McCachran, Box 25C, Melbourne.
2ADH—J. C. Deaman, Flat 35, Housing Commission, Victoria.
2AJQ—F. C. Turner, 294 Kippa St., Bathurst.
2AKU—J. Georgeson, 7 Rothwell Cres., Lane Cove.
2AGN—J. F. Cox, 8 New England Drive, Kingsgrove.
2AVO—J. T. Crichton, Rous Rd., Gonellabah.

Victoria

- 2LF—M. K. Bunn, Melbourne Rd., Kew.
2LG—J. A. Williams, 110 Johnston St., Newport.
2MX—P. J. Seibre, 4 Howell St., Moorabbin.
2UJ—A. Roudie, Crofton Way, Crofton.
2UJ—F. M. O'Donnell, Lynch St., Vero Beach, 2ABM—J. B. Watson, Station: S.S. "Eastern," Postal: C/o Messrs. MacDonald Hamilton & Co., Box 2402, Melbourne.
3AJO—J. R. O'Halloran, Church St., Lakes Entrance.
3AL—A. E. Clark, Laura St., Maffra.
3AOB—E. F. O'Brien, 33 Hare St., Shepparton.
3AQK—J. M. Ray, 9 Hederdewick St., North Warrnambool.
3ARF—R. C. Shorfield, "Redwood," Bayswater Rd., Crofton.
3ASC—E. E. Clark, Station: 194 St. Helier St., Heidelberg, Postal: Flat 20, 100 Drummond St., Carlton.

(Continued on Page 12)

*A new
and revised
edition of*

PHILIPS VALVE DATA BOOK

This, the 5th edition, is completely revised to include information on new valves and Germanium Diodes.

In all, well over 1,200 valve types are detailed, making this book a most valuable reference work.

A "must" for every radio serviceman or hobbyist

Compiled in Australia, Philips Valve Data Book gives all relevant information on every valve type likely to be encountered. Its modest price makes it immense value. Copies available from your regular Philips Valve Supplier.

Only **10/6** plus postage



COMPLETE VALVE REFERENCE AT ONE GLANCE
Special fold-out charts give base figures of each type. These, together with the information supplied in the centre pages, mean that **all information** is available at one opening of the book. It's a convenient and time-saving feature of Philips Valve Data Book.

PHILIPS ELECTRICAL INDUSTRIES PTY. LTD.

69 Clarence Street, SYDNEY. 590 Bourke Street, MELBOURNE. 148 Edward Street, BRISBANE. 381-5 Murray Street, PERTH. 119 Grenfell Street, ADELAIDE

PV4.55

SEVENTH ANNUAL URUNGA CONVENTION

The North Coast and Tablelands Zone Convention was again held at Urunga commencing on 8th April and running until 11th April, and it again proved to be one of the most popular Conventions. The weather was not so kind as in previous years, but as the time passed, it appeared that the organising committee also had some say in the activities of Jupiter Pluvius.

Many of those attending had arrived by Friday and duly settled in to the hotel, guest houses and the camping reserve, and all attended a meeting held at the Ocean View Hotel on Good Friday night. The meeting was presided over by the Convention President, Alan Williams, 2FH, who welcomed firstly the President of the N.S.W. Division, Jim Corbin, 2YC, and the Federal Secretary, Doug Bowie, 3DU, to Urunga. Alan outlined the agenda of the meeting and the President gave his introductory speech on Institute matters. The site of the 8th Convention of this zone was discussed and it was decided that the Convention be held at Easter weekend, 1956, and should be held again at Urunga. Its ideal geographical location, its facilities both for accommodation and for the organising of competitions, and the great support given to the committee by the local organisations, making it the ideal place for such a function.

Officers were duly elected for the coming year, the election resulting as follows: Patron, Crief Retallick; Convention President, Noel Hanson, 2AHH; Vice-President, Jack Gerard, 2ADN; Secretary, Alan Williams, 2FH; Treasurer, Ted Gabriel, 2AWG; Organiser, Peter Alexander, 2PA; Sydney Liaison Officer, Ted Whiting, 2ACD.

Discussion then took place on a number of matters affecting the Zone Disposal, the N.S.W. Co-Operative Ltd., etc. Answers to many questions were given by the President and both he and the members of the N.S.W. Council present, Barry 2AAB and Don 2ASW, came away from the meeting with many ideas and the opinions of the members of the North Coast Zone members.

Many informal discussions were held with Doug Bowie, Federal Secretary, and many points of interest were cleared up, Doug being particularly pleased that he was able to make so many personal contacts and discuss so many and diverse subjects.

The next day, Saturday, the morning was given over to the registration of those attending and of course the usual ragchew. On such occasions many old friendships are realised and many new ones made in an atmosphere of conviviality. Those registered: 2AHA, 2XT, 2ACU, 2YC, 2AAB, 3DU, 2ABY, 4FR, 2EA, 3QI, 2PA, 3AD, 2SE, 2OE, 3ALQ, 2AWG, 2AVS, 2AUL, 2FH, 4TH, 4EF, 2AXZ, 2APB, 2ACD, 2ASW, 2WQ, 2AWG, 2APB, 2JK, 2ABT, 2ABP, 2AJF, 2AMV, 2JC, 2APS, 2ADN, 2ASA, Associates Norm Dash, Bob Bailey, Les Gilbertson, Harry Miller, Roy Woods, Norm Moody, Snow McCaulay; Ladies: Mesdames Bowie, Rafter, Bowler, Alexander, Ash, Dunford, Meagher, Smith, Miss M. Hunt.

The "Gerry Challenger Remembrance Contest" for 7 Mc. Portable and Mobile stations was held in the afternoon. All contestants starting from the green and proceeding to their locations within a 3-8 mile radius of the town to commence operation 30 minutes later. Concurrently with this event, the ladies were conducted on a launch trip up the beautiful Bellingen River by "Admiral" Moody.

Following dinner, a social gathering was held at the camping reserve at which some excellent films were shown by Ted Hamey from Coffs Harbour, slides by John Meagher followed showing the results of the recent disastrous floods at Gilgandra and Forbes. The popular item on the evening programme was, of course, the de-modulating of the 807. Music was supplied by Rod Woods on the accordion and most attending reached their accommodation at a very early hour.

The 144 Mc. Tx Hunt was held in doubtful weather, but despite the conditions several contestants found the tx manned by 2FH and Norm Dash some miles out of town. 2AAR and others experienced difficulty with a road but all ended well.

The W.I.A. Broadcast was made from the mobile station of 2ASA and was conducted by Jim Corbin and Doug Bowie.

Possibly the most humorous event held at Urunga was the Blindfold 144 Mc. tx hunt held on the green in the front of the hotel. The control station was moved for each heat and all agreed that it is a most amusing event. Meanwhile, "General" Moody conducted the ladies on a scenic car trip up the Bellingen Valley to Bellingen and return, the scenic beauty of the district impressing the visitors.

Next event was the Urunga Scramble for a trophy donated by United Radio Distributors. The object of this contest is to work the most stations on any power from any source, no holds barred. A special prize in this event is given for the best contact on a miles per watt basis.

Sunday night-brings an annual event, the Concert held in the School of Arts, Urunga. At this concert all the local people are invited by the zone members,

the hall was full and a fine programme was arranged by Jack 2ADN. Artists taking part were Vic Hardacre, Lindsay Cross, Ina Alexander, Melvyn Cox, Roy Woods, Noel Hanson. Apologies for non-attendance were received from Crief 2XO who, with Mrs. Retallick, is marooned temporarily in VK7 and many other chaps who found that they could not attend. The compere for the evening, Ted 2AVG, introduced Jim Corbin, Doug Bowie, Mr. Cooper (President of Progress Association) and Mr. A'Hearne (Secretary Progress Association). In his address of welcome to the visitors to the town, Mr. Cooper stated how pleased his Association was to see so many visitors to this popular resort and referred to the part Amateur Radio played in the recent emergencies. Jim Corbin replied in his customary manner, but on this occasion did not eclipse his endurance feat of the previous night when he spoke for some long period of 75 minutes (2ADT and 4AB please note!).

Following an excellent concert, the prizes won in the events of the Convention were presented by Doug Bowie, Federal Secretary (3DU). These were distributed as follows:

Gerry Challenger Trophy and Replica: Don 2ASW, 72 points, 1st; Noel, 2AHH, 65.7 pts., 2nd; Peter 2PA, 61 pts., 3rd. Urunga Scramble: Barry 2AAB, 45 contacts, 1st; Noel 2AHH, 38 contacts, 2nd; Alan Williams, 36 contacts, 3rd. Hidden Tx Hunt, 144 Mc: John 2AMV, 1st; Norm Moody, 2nd; Harold Whyte, 3rd. Blindfold 144 Mc. Tx Hunt: John 4FP, 1st; Leith 2EA, 2nd; Harry Miller, 3rd. Lucky Number: Jack 2AJF won a toaster donated by A.G.E. Co. Ltd. Most miles per watt in the Urunga Scramble: Bill 2XT with a contact with ZLIADV.

Finally supper was served by the ladies of the local Progress Association and a further 807 was suitably dealt with, with the musical encouragement of Roy Woods. An excellent evening was had by all.

Ragchews and farewells are the order of the day on Monday, Doug and his wife to Sydney en route to VK3, full of thoughts and ideas for the future; the Hunter River gang back to their homes around Newcastle, and many journeying by road and rail to various parts of the State, all ready we feel sure to return to Urunga next Easter to enjoy more of the hospitality of the North Coast gage.

Noel Hanson wishes to record his personal thanks and the thanks of the committee for the support you gave them. More Amateurs visited this Convention than any previous one, and hopes that you will all return next Easter when it is hoped to arrange a bigger and better programme. Thanks go out also to the management of the Ocean View Hotel, Urunga; Pilot Guest House and Berry's Guest House, Urunga Progress Association, R.S.L. Urunga Branch, and to all those who contributed to making our stay in Urunga so enjoyable—2ACD.

WIRELESS INSTITUTE OF AUS. (N.S.W. DIVISION)

A.O.C.P. CLASS

The new Class commences at the end of April and all interested are requested to contact the Class Secretary, Box 1784, G.P.O., Sydney. Full instruction is given on the entire syllabus for the A.O.C.P. including proficient Morse instruction. Don't miss this opportunity of getting on the air.

The 1955 Edition has now arrived!

"Radio Amateurs' Handbook"

Published by American Radio Relay League

THE BOOK OF THE YEAR FOR ALL RADIO ENTHUSIASTS

Price **44/3** and **2/-** Postage

BOOK YOUR ORDER NOW

McGILL'S Authorised Newsagency

Est. 1860

183-185 ELIZABETH STREET, MELBOURNE, C.1, VICTORIA.

"The Post Office is opposite"

Phone: MY 1475-7

**AEGIS RADIO
COILS & PARTS**
do a grand job for you!

WITH WINTER COMING, you'll want to get down to it and build your own high quality amplifier or radio equipment. But be sure you stipulate AEGIS components from your favourite dealer. AEGIS is tops in quality and performance. Here are some from our range.

AEGIS MIDGET
COILS AND I.F.
TRANSFORMERS

Type M24 Aerial Shielded Perm. Iron Core.
Type M25 R.F. Shielded Perm. Iron Core.
Type M26 A Osc. Shielded Perm.—GANT.
Type M26 B Osc. Shielded Perm.—GREA.
Type M26 C Osc. Shielded Perm.—LRA.
Type M26 D Osc. Shielded Perm.—GAES.

I.F.
TRANSFORMERS
DUAL WAVE
KITS

Type J22 General Purpose 655 Kc. Midget Perm.
Type J20 Battery 1-4 valve 455 Kc. Midget Perm.
Type J19 Standard 455 Kc.
Type KIM Midget Dual Wave for GANT or GAES only.
Size: 3 1/4 x 1 1/4 x 1 1/4 inches.

For full technical information write to—

AEGIS MFG. CO. PTY. LTD.

208 LIT LONSDALE STREET, MELBOURNE, VIC.

Telephone: FB 3731 (3 lines)

If difficulty experienced obtaining supplies, contact nearest Aegis Distributor:

N.E.W.: Nth. Sydney. Sth. Aust.: Geo. Procter. Qld.: Chandlers. W. Aust.: A. J. Wyle. Perth.



TUNING KNUBS, Large and Small, Bakelite.
RESISTOR STRIPS
PACKAGED HARDWARE

CERAMIC INSULATORS
Complete range of stand-off and feed-through types.

DX ACTIVITY BY VK3AHH!

PROPAGATION REPORT

3.5 Me. This band continues to offer relatively good conditions for overseas communication. Times for North America, the Pacific Islands, and the Far East were between 0730z and 1300z. Openings to Europe existed around 2000-2115z.

7 Me.. Here conditions followed the general pattern with Europe and North Africa over short and long path 1800-2300z and 0700-0800z; and North America around 0900-1400z. Some long path contacts with the East Coast of North America were possible around 2100-2300z. South America break-throughs were noticed around 0700-0800z.

14 Mo. Some deterioration of conditions on this band has been reported. The band opened to Europe via the short path around 1300x and sporadically over the long path to G-land (0700-1000x). African openings occurred around 1700-2000x. Conditions to the American Continents existed between 0300x and 0800x, and around 1200x.

12/20/51
21 Mo.: This band showed some good break-throughs to North and South America and Africa 2300-0400z, 0500-0800z:
37/38 Mo.: The only report referring to this band does not mention any contacts.

NEWS AND NOTES

Wherever DXers meet, on crowded Amateur bands or even personally, there is one topic which is certain to be dealt with, unfortunately more by words than deeds. Common are our complaints and united we stand against "Commercialism". The following list of frequencies within the 7.0 to 7.1 Mc. "exclusive" (????) Amateur band, which are used in Europe, has been received from a well known DXer. AEs: SMSAQP: 7000, 7005, 7008, 7010, 7018, 7022, 7025, 7030, 7040, 7050, 7062, 7065, 7070, 7075, 7078, 7085, 7088, 7092, 7096, and 7100 Kc. On these frequencies B/C stations have actually been received and identified in Europe. We shall never be scared off the band by them, but shall insist on our rights—proven and true in 1921 as well as 1955!

Consequently, let us get into action! Let us boost? Mic, activity by every possible means: Contests, Scrambles, Certificates, etc. etc.!

The 23rd March, 1955, found Bill VK1EG, George VK1DY, and John VK1PG, of the Australian 1954 Antarctic Expedition being welcomed by VKs 3IB (ex-1AC, Macquarie Island), 3BG, 3VS, and 3AHH.

During the month, a well known WDXer, Bill Baird, WZCPN, gave the Melbourne gang an excellent chance for an interchange of thoughts and ideas on Amateur problems everywhere. It was a pleasure to have you here, Bill! We appreciated your interest in our W.I.A. activities!

Corn Island will be represented for three or four days beginning 23rd April, 1955. The station will operate on all bands under the call sign YN6YN. Information was received by 3WB from ZL2ASQ. (Thanks 3WB)

HC8GI is active on 14160 Kc. (from 3KB, 3TE, W8CZD).

The boys at Mawson, Antarctica (VKA 1EM, 1RA, 1AWT) have commenced operation (from 3XB)

Activity by **FY7YE** and **ZD8AA** has been reported (from 3TE, W8CZD).

The only legal stations in Ethiopia are ET3R and ET3Q (from SM5AQV).

A new station on the New Hebrides is **YJIDL** (from ZLIADU).

† Hans J. Albrecht, 10 Belgravia Ave., Box 8111
Knoxville, W. Va. 37614.

* Call signs and prefixes worked.
x—zero time—G.M.T.

ZC3AC can be expected to be on again next month. Frequency: 14163 Kc. He can copy c.w. (from 6MK).

By courtesy of the Northern California DX Club and their DXer: Active list of VP8 and LU-Z stations: South Shetlands-CP8AK, AW, AX, LU 3ZS, 4ZL, 1ZT, 7Z0, 8ZS; South Georgia-VP8AT, AU; South Orkneys-VP8AQ, AE, and LU7ZM; Falklands-VP8AP, AN; Antarctica-LU1ZK, 2ZC, 9ZM, 1ZS; Grahamland VP8AJ, AA, AO, RA, RE.

And from the Southern California DX Club and their Bulletin: **MP4QAJ**, **FD8AA**, and **FL8AI** are active on 14 Mc

At time of writing there is no active VKI on Cocos Island, but rumours are that the meteorological officer, who is qualified to get a license, will soon do so and represent the islands again (from 6MK).

Signing and posting, production, preparation, drafting and arrangement of our official W.I.A. propaganda for the Olympic Games were done by VKs 3TF, 3RN, 3ZS, 3AHH. Useful assistance was provided by VKs 3DU and 3NY. Other W.I.A. Divisions and the 76 Overseas Amateur Radio Associations should have received the information by now.

ACTIVITIES

LS Mc - Frank SQL worked Ws* and
VE7AH3* and heard KMGAX, KHS, JAS.
Neville SAPL reports W3 and JA1CJ Neil
SNG worked W1* and Kel SAPF reports W8*
and VE Norm 3AXX heard a series of Ws, and
Austin 0WO also contacted W8*, W1* The next
is Eric BERS194 who heard a number of
Ws. 3ABH worked Ws* and heard Europeans,
KMGAX, KHS and JAS.

[illegible]

14 We CW TQL P2JAZ KGS KJS and
MPQAK MPQAK TAMB ZMBAR P0BAG
ZAPL GCCKAR Alan SCK XM DL KA
TRBA MPQAK TIBXK KHS F VKIHH
ZBIAT HBH LA JA KSK GIDC
KJH KJH KJH KJH KJH KJH
OH VKIHM DL YU SCK VKIHM (Maw-
soni) YVSAZ Lee JO KA KHS OH
OH YV SM DJ KR68 Fred JYS FI
HBH KKS Bob KR70 ZIBPCK YVBIJ
KJH KJH KJH KJH KJH KJH
(Hong path) KAJAZ CNCKG COTAH
YJUC FAZPAD () KJS KRA LUISE PYCK
JZBAG VKIHH YVBIJ VSBCK VSBCK
YVSD VUZET Dave Jenkins YVSD (Hilari)
KJH KJH KJH KJH KJH KJH
OH FAZZ JA VSBCK

14 Me. Phonc. **AKR** **KRMOK** **HCIEZ** **HCIEZ**
HCIEZ **Stn** **JTE** **CTIPK** **DL** **XZ** **F**
FAWBD **G** **GWXND** **IL** **KCS** **KL7** **OH**
KEITP **JVBDE** **Harold** **BAAB** **BVIUS**
Form **Ec** **Ec** **Ec** **Ec** **Ec** **Ec** **Ec**
ZDBPFC **OASN** **HK3AZ** **LURAAAF** **LASHNE**
KSAIVR **ZBAJAX** **HCIEZ** **VR3C** **EABAZZ**
CTIPK **HCIPG** **HRMXX** **Jhm** **SBI** **KJ8**
Form **Ec** **Ec** **Ec** **Ec** **Ec** **Ec** **Ec**
ZSSAW **(163Z)** **3V8AS** **HRK3CZ** **JL** **DL**
TGBOM **HC8G1** **ON** **HCIEZ** **ZS15W**
VYSAO **SWO** **G** **PIJ** **F** **GD3IBQ**
Form **Ec** **Ec** **Ec** **Ec** **Ec** **Ec** **Ec**
Ton **6MR** **ZDBPFC** **EL2X** **ZDZIRVR** **ZS3P**
ZDZIRVR **VQ5ZK** **VQ5CB** **BES106** **KAOJL**
KR8 **KX8** **Jhm** **Bms** **ZS15W** **3V8AS** **KTWXX**
HCIEZ **HCIEZ** **HCIEZ** **HCIEZ** **HCIEZ** **HCIEZ**
VU8Z **VU8Z** **VU8Z** **KPMK** **DUT8Z**

FISBB, ZM6AR, VS6RE, VS2EM, F/8BF, FISAO, VS2DQ, DULJE, DULCE, Dave Jenkins: OA2A, ZS1SW, TIERMC (0734x), G. I. CN3MS, VR2BZ, UC4BN

[illegible]

Rare QSLs were received by 3AMB, CP3CA, 6WO, CR7AR, AP2Q, EASAR, QASZ, MP4BHE, YV3CE, OEHWW ETEGB, 6MK VS5KU BERS-1M: T4SEFA, MD2KP, VK1RL, ZC4P, VS3KU

Thanks to the Northern California and Southern California DX-Clubs, SMSAQV, W6CZD, ZL1ADU, and VKs 2QL, 2AMB, 2APL, 3CX, 3HG, 3JA, 3KR, 3PA, 3TE, 3WB, 3XB, 3XO, 3YB, 3AEP, 3AHC, 3AIX, 4RW, 6HI, 6RK, 5WO (you should also have been mentioned here in the last issue—sorry Austin, my mistake!), 6MX, and 6W1s BERS10, Jim Hunt, and Dave Jenkins.

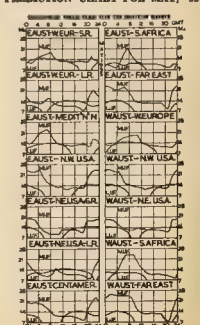
VALE KETH RUDKIN. VK2DG

Radio Amateur throughout VK and EL fell deep sorrow at the sudden death of Keith Rudkin, VK3DQ, at the age of 44 years. Keith was always a c.w. man, and during his years of operating on the DX bands he made thousands of friends and received himself a large number of certificates. On numerous occasions Keith was a c.w. member of the VK-EL Contest and he also was the c.w. action of the Jubilee Contest. Keith formerly was Radio Engineer at SER and latterly at INX where he performed sterling service during the recent heat summer.

His quiet unassuming manner endeared him to all who met him and he will be sadly missed from the ranks of the Hunter Branch.

We extend our deepest sympathy to his wife and sons in their time of sorrow and we know that Amateur Radio will be the poorer for his passing.

PREDICTION CHART FOR MAY, '55



SHORT WAVE LISTENERS' SECTION*

S.W.L. GROUP REACHES TO SWEDEN

From Sweden we received mail from two new members, Len Thörnblom, of Björnsbovägen, Karlskoga, 3, Sweden, and his companion, Eric Thörnblom, Box 485, Valasen, Sweden. To you Len and Bo we welcome you and wish you very pleasant future DX. Len states that their hobbies are DXing, stamps, and souvenirs and would like to hear from any interested Amateur. They heard of us through "Radio Australia," so we must thank Graeme Hutchings, of "Radio Australia," for publicising our activities to the world.

VICTORIAN GROUP

The last meeting of the VKS S.W.I. Group met on 29th March at 181 Queen Street. Much discussion took place on the future activities of the club and keen interest has been aroused concerning the coming Hobbies Exhibition which is to be held during the month of August. Reports have been received to state that the W.I.A. have been allotted a stand and this year the S.W.I.A. will help fill the display

Meetings are held on the last Tuesday of the month. At the May meeting, representatives of Eddystone, the makers of Eddystone Communication equipment, will give a lecture and demonstration of the famous Eddystone equipment. The June meeting will take the form of a reconstructional night. Bring along any gear and problems you have and we will endeavour to iron them out for you.

SOUTH AUSTRALIAN GROUP

We were pleased to receive from Mac Hilliard a report of the March meeting of the VKS Group. This Group was formed in February. The first meeting took the form of a general discussion. It was decided to elect officers at the March meeting, however only eight members turned up and it was decided to leave this until membership had increased. Jim Paris, who is the Associate member on the Council, was Chairman.

It is hoped to further the interest in general short wave listening by arranging a display at the Hobbies Exhibition, which is to be held in Adelaide during March.

The VK3 s.w.l. Group meet at the Central Methodist Mission in Franklin Street, Adelaide, at 5 p.m. on the second Monday in each month.

To the VK3 Group we in VK3 wish you every success in the formation of your Group and all the best DX. By the way, boys, how about arranging an Interstate s.w.l. contest? Write and let us know your reaction to the subject.

HEARD ON THE BANDS

144 Mo.: From Gerard Lane—3ZAA, 3ZAC, 3ABA, 3KD, 3ZL, 3ACR, 3ATB, 3ALW, 3YS, 3PG, 3ZAR, 3ALY. From 3ZAG we received 3BH, 3HK, 3Y8, 3ML, 3BQ, 3CP and 3ZAA.

14 Mo.: Michael Ide heard V83, KA2, CT1.
32AQ heard 497, V82, 437, VK9, JA6, KR8,
JA3, KA9, KH5, ZL1, ZL3. Len Cragen heard
VK9, ZL1, JA4, KA3, KR8, KR7. Mac Millard
heard ZS1, ZS6, TT2.

Broadcast Band DX: From Gerard Lane, the following DX tips are to hand. 2YA Wellington, N.Z., 570 Kc at 1900 hrs. 2ZB Wellington, N.Z., 888 Kc. at 1920 hrs. JOAS Japan, 690 Kc. at 0200 hrs. VUD6 India, 710 Kc. at 0210 hrs. JOXK Japan, 920 Kc. at 0130 hrs. VOA Phil., Isl., 1140 Kc. at 0110 hrs.

Short Wave B.C. Bands DX. From Gerard Lane—On 1534 Mc. Voice of Germany, heard RS 58/5 at 2202 hrs. On 11,890 Mc, GWW in London at RS 58/5 at 2202 hrs. On 5,060 Mc. YDY in Indonesia at RS 56/7 at 2000 hrs. On 6,165 Mc., KCKK, Dixon, California, U.S.A., RS 58/5 at 2100 hrs.

OF VICTORIAN S.W.L. GROUP

1. Membership is open to anyone interested in the non-transmitting side of radio, particularly for listeners, no matter what bands they listen on, i.e. short wave broadcast, broadcast band, or Amateur bands.

2. Membership shall be essentially same as Associate membership to W.J.A., except that those under 18 years no fee shall be charged for membership. All fees are as for Associate membership.

3. From the general members each year there shall be elected a President, Vice-President, Secretary, Magazine, Correspondent (and FWI Broadcast), and any committees that are deemed necessary (i.e. contest, etc.).

4. President shall be responsible for conducting of all meeting, etc., and to act as Chairman for same. Vice-President to act in his capacity when President is absent. Secretary to act as group correspondent, etc. Mag.

correspondent to prepare notes, etc., for "Amateur Radio" and for SWI Broadcast.

5. The Group's aim is to cater for all persons interested in radio. Provide a meeting place to discuss events, etc. Arrange demonstrations and exhibitions of equipment relating to their hobby. Organise contests for members' participation and competitions as it sees fit. To encourage its members into the field of Amateur Radio with its associated attractions.

SEND THOSE ENTRIES IN:

The Contest closed on 31st March, 1955. Entries to be forwarded to John Wilson, 37 Rayment St., Alphington, Victoria, not later than 30th June, 1955.

Entries to contain the following:

(11) All cards to be sorted into section entered, i.e. 1, Amateur, 2, S/W Broadcast, 3, Broadcast band. Section 4 will be determined by judges, who will judge each section and then tally individual totals into an overall number.

(2) A list compiled by entrant of all cards sent (two copies), one will be returned upon

Low Drift Crystals

FOR
AMATEUR
BANDS

ACCURACY 0.02% OF
STATED FREQUENCY

3.5 Mc. and 7 Mc.
Unmounted £2 0 0

Mounted 1444 4000 0112 **£2 10 0**

**12.5 and 14 Mc. Fundamental
Crystals, "Low Drift,"
Mounted only, £5.**

Spot Frequency Crystals Prices on Application.

Regrinds .. + 2010 4000 £1 0 0

THESE PRICES DO NOT
INCLUDE SALES TAX.

MAXWELL HOWDEN
15 CLAREMONT CRES.,
CANTERBURY, E.7,
VICTORIA

- receipt of cards and will be official notification to entrant of receiving entry. It should also contain formal notice of entry into contest; e.g. I wish to enter the following verifications into Contest, Section/s, etc.

Winners notified. Results in "Amateur Radio" for August and through VKEWI on Sunday Broadcast on 21st July.

It is advised for safety sake to send your entries by registered post. All cars exercised while in judges' hands. All entries must be received at the above address no later than last mail 30th June.

EDITORIAL

(Continued from Page 1)

possible, for they are the Amateurs of the future. I might also mention our new Limited Licensees who have now gained a place in our ranks. It should be your personal aim as a member to recruit as many of these and other Amateurs as members of the Institute. It is the policy to foster any means of encouraging membership, with the ideal of encompassing all licensed Amateurs within our ambit.

Another major task of the Executive is that of Emergency Networks. The disaster which so recently befell N.S.W. is still fresh in everyone's mind, and has once again demonstrated the worth of the Amateur to the community. Nothing but the highest praise can be extended to them for a job well done; and yet I am sure the N.S.W. Division themselves would be the first to admit that improvements could be made to the efficiency of their network. A National plan is imperative, into which Divisional nets can be integrated quickly in an emergency. Your Executive has already promulgated such a plan to the Divisions for approval. This plan should receive your earnest consideration and support, and it is our endeavour to bring this plan to fruition during the year.

It is most important for the Institute in particular and Amateur Radio in general, that we have direct representation at the next International Radio Convention, and if this is to be a preliminary Region 3 Conference is needed. An opportune time for such an event would be during the Olympic Games in 1956, and although this will in itself require careful organisation and finance, we feel it is essential in order to co-ordinate the views of other Region 3 Societies, so that in the International event we can speak with one voice. This problem is already under consideration, and we hope to present Divisions with a workable scheme very soon.

A complete revision of the Policy Book is under way and should be with Divisions for confirmation within a month or so. All minutes and motions of past Federal Conventions will be carefully examined to see that no motions have been overlooked. Many other matters of equal import will be dealt with during the year, and finally I will reiterate my earlier statement that every effort and energy will be directed towards assisting the Institute to achieve the status of a national authority and public alike, which an organisation such as ours so rightfully deserves. With your confidence, your energy and your zeal guiding us, such a goal becomes reality. "United we stand, divided we fall."

W. T. S. MITCHELL, Federal President.

"ACOS" CRYSTAL MICROPHONES and MICROPHONE INSERTS

A Complete Range For Every Purpose

DESK OR HAND MICROPHONE

MIC 36



£6/18/6

Housed in attractive plastic case, this Microphone is ideal for home recording and public address, etc. Response unexcelled for its size and price. The performance is not affected by vibration, shock or low frequency wind noise. Omni-directional frequency response substantially flat from 30 to 7000 c.p.s. Recommended load resistance not less than 1 megohm dependent on low frequency response. Can be supplied complete with switch and floor stand adaptor as required at a small extra cost.

HIGH QUALITY MICROPHONE

Designed to meet even the most exacting requirements, this Microphone incorporates the world famous floating crystal sound cell construction. Its special characteristics are that its fine performance is not affected by vibration or shock. The fidelity is not impaired by low frequency wind noise.

SPECIFICATION

Recommended load resistance—not less than 1 megohm.
Output level —55 db ref. 1 volt/dyne/cm².
Frequency response—substantially flat from 30 c.p.s. to 10,000 c.p.s.
Directivity—non-directional.
Size—2 1/2" spherical diameter.
Connector—Standard International 3-pin.

MIC 16



£24/19/6

GENERAL PURPOSE MICROPHONE

MIC 35



£2/15/-

substantially flat response from 50 to 5000 c.p.s.

SPECIFICATION

Output level: —55 db ref. 1 volt/dyne/cm².
Cable—approx. 4 ft. of co-axial supplied.
Weight—6 ozs. unpacked, 7 ozs. packed.
Dimensions—microphone only 2 1/4" x 2 1/4" x 1 1/2"

TABLE AND STAND MICROPHONE

MIC 22



This omni-directional Microphone is robust in construction, with a pleasing appearance. Vibration, shock or low frequency wind noise will not affect the performance. The low frequency cut-off is dependent on the load resistance. The cut-off is given by the quotation, $F = 80 \div R$, where F = c.p.s., R = megohms. An adaptor (floor mounting) is available at low extra cost.

SPECIFICATION

Output level = —50 db ref. 1 volt/dyne/cm².
Output impedance—equivalent to approximately 0.002 uF. (0.8 megohm at 100 cycles).
Frequency response—substantially flat from 40 to 6000 c.p.s.
Recommended load resistance—not less than 1 megohm, dependent on low frequency response.

£9/18/6

LAPEL MICROPHONE

MIC 23



£5/19/6

Designed to give freedom of movement, this Microphone is small and non-directional. Housed in a soft moulded rubber case, which gives protection against shock, it is provided with a pin at the rear of the case for pinning to the lapel.

SPECIFICATION

Output level—approx. —55 db ref. 1 volt/dyne/cm².
Recommended load resistance—5 megohms.
Frequency response—level throughout the whole of the audible spectrum.
Capacity—0.0015 uF. at 1000 c.p.s.
Impedance—100,000 ohms at 1000 c.p.s.
Cord—6 ft. shielded cable.
Size—1-9/16" wide x 2 1/4" long x 3/8" thick

HAND OR DESK MICROPHONE

MIC 33



£6/18/6

This Microphone has been designed for the high quality public address and home recording field. High sensitivity and flat characteristics are obtained by a specially designed acoustic filter. Housed in an attractive plastic case with an unexcelled response for its size and price. Unaffected by vibration, shock or low frequency wind noise. Omni-directional frequency response substantially flat from 30 to 7000 c.p.s.

MICROPHONE INSERTS

CRYSTAL MICROPHONE INSERTS

MICROPHONE INSERTS



(MIC 32 illustrated)

These Inserts are available in varying sizes ranging from as small as 15/16" square to 1-13/16" round, with various thicknesses from 7/32" to 9/16". Suitable for every purpose such as hearing aids, public address, tape recording, amateur broadcasting, etc., they have responses from 2250 c.p.s. to 3500 c.p.s. at 5 db to 30 db. Insert can be supplied with or without 10 meg. resistor as required.

MIC 32 insert, £2/15/6; all others, £1/19/6.



(MIC 23 illustrated)

EXCLUSIVE AGENTS:

AMPLION (A'SIA) PTY. LTD.

SYDNEY, AUSTRALIA

FEDERAL, QSL, and VISITAL NOTES

FEDERAL

MEMBERS OF ADVISORY COMMITTEES FOR 1966

The following Amateur have been appointed to the Amateur Advisory Committees for 1966:

New South Wales
Messrs. G. T. Bux (VK2RUB), N. MacNaughton (VK2ZHN), R. W. Patterson (VK2JAJ), J. C. Pinnell (VK2ZIR), L. H. Taylor (VK2JWL), V. H. Wilson (VK2BV).

Victoria
Messrs. R. A. C. Anderson (VK3WY), A. L. Brehaut (VK3SB), C. R. Gibson (VK3FO), G. W. Manning (VK3XJ).

Queensland
Messrs. J. G. Hies (VK4FV), G. Harmer (VK4XW), A. Harris (VK4YH), H. T. Hewitt (VK4PD), L. E. H. Mallinson (VK4LM), J. F. Pickles (VK4FP).

South Australia
Messrs. B. W. Austin (VK5CA), C. A. Doddridge (VK5CD), A. S. Little (VK5AP), H. E. Bicey (VK5KA), C. D. L. Tibbrook (VK5GL), D. R. Whitburn (VK5BY).

Western Australia
Messrs. W. J. Howe (VK6ZAA), N. F. Coopers (VK6NP), J. E. Rumble (VK6RU), A. V. Savory (VK6TJ), F. T. Tredrea (VK6TF), F. H. Turner (VK6UP).

Tasmania
Messrs. R. M. Barker (VK7RM), A. Hubbard (VK7AG), M. H. Jones (VK7MH), J. L. R. Jensen (VK7LJ), T. F. Moore (VK7FM), R. D. O'May (VK7OM).

LIST OF SUCCESSFUL AMATEUR CANDIDATES

The following is a list of candidates who were successful at the examination for the Amateur Operator's Certificate and Amateur Operator's Limited Certificate, held on 11th January, 1965:

New South Wales
B. N. North, 18 Gladstone Street, Belhurst.
*W. B. Jones, P.O. Box 351, Griffith.
*G. Harriman, Fern 1950, Lake Wyangan, Griffith.
*W. O. D. Morgan Street, Peterham.
*B. Holland, 9 Downshire Parade, Chester Hill.
*D. Nutt, 12 Austral Bldg., Anzac Parade, Maroubra.
*K. S. Powell, 76 E. Kancona Street, Carlingbah.

Victoria
J. Spark, 20 Marshall Avenue, Moa.
D. J. Hall, Nullewara, via Allansford.
M. Dzialowicz, name changed by Deed Poll to L. Deewer, 9 Reid St., Murrumbidgee.
*P. Everett, 30 Victoria St., Melbourne.
*A. J. Bowman, 476 Nepean Highway, Frankston.
*W. I. Dawson, 14 Tall Street, Footscray.
*A. F. Elliott, 31 Feniton Street, Ascot Vale.
*B. Heine, Liverpool Road, Kilsyth.
*I. R. Woodman, 24 Fewster Road, Hampton.

Queensland
E. J. Leather, Jefferson Lane, Palm Beach.
South Australia
*J. A. Gibbs, 208 Mutt Street, Adelaide.
*D. Tidy, 48 Balcombe Ave., Findon, West.
*A. L. Wae, 104 Alexander Avenue, Ashford.

Western Australia
*R. E. Elms, 131 Shepperton Rd., Victoria Park.
*T. B. Long, 27 Armadale Cres., Mt. Lawley.

Tasmania
*G. S. Jennings, P.O. Box 210, Queenstown (address now 25 Royal Pde., Parkville, Victoria).

* Qualified for Limited Certificate.

AMENDMENTS TO THE FEDERAL CONSTITUTION

Under the direction of the Federal Council of the Wireless Institute of Australia, the Federal Executive Board gives notice that it intended to alter the Federal Constitution (1947) of the W.I.A. as follows:

The words "inserting after the words 'The Tasmanian Division'" the words "The Papua New Guinea Division".
Section 28 (1) inserting the words "or Limited Amateur Operator's Certificate of Proficiency" after the words "or Limited Amateur Operator's Certificate of Proficiency".

FEDERAL QSL BUREAU

RAY JONES, VK5RJ, MANAGER

Rob SRG reports having the first QSO with VK1EM at Mawson. Eric stated that conditions for QSOs with Australia have been very bad

and that SRG was the only VK heard to end of March. In an interesting letter describing the trip down to Mawson and the short landing at the Vestfold Hills, Larsemann Hills and Sandefjord Bay, he mentions that as at end of February he had seen more aurora in the few days since his arrival at Mawson than he saw for the whole year while at Macquarie Island.

C. R. Fong, P.O. Box 48, Goeuku, Ryukyus, writes seeking correspondence with Short Wave Listeners in Australia.

The new address of the QSL Bureau for Greece is: George N. Zarifa, 10 St. Fanourion Street, Pangrati, Athens, Greece.

The new address of the Irish Radio Transmitters Society (QSL) is: ESU, Ian Morris, 8 Shanraha Rd., Whitehall, Dublin, Eire.

Page of XINP, is back again around the same location and on the same vessel. This time he has a sister ship with him and the Amateur aboard is signing XINE. At time of QSO vessels were off Palm Passage, out north-east of Townsville, on the Barrier Reef.

Alan XCN advises that anyone needing a QSL for QSO with CPIXB during 1961-83 may obtain same by writing TIBEX, Dept Westlake, care to Civil Control Mission, U.S. Embassy, San Jose, Costa Rica.

The QSL Bureau address for Portugal is: R. E. A. Oliveira, QSL, Rua D. Pedro V, 1-4, Lisbon, Portugal.

Russell Fraser, ex-VK1RL, now resident near Sydney, advises that he still intends to QSL all contacts made while he was on Macquarie Island in 1963. There's no time like the present, Russ.

TAJJA, who was much in evidence on DX bands in 1963, was operated near Izmit, Turkey, by Commander Sturkey of U.S.N., whose present QTH is in the United States, Falls Church, Va. U.S.A., and his present call is W4PZ. His YL signs W4TH. Both would welcome VK contacts.

BEKKA says it is rumored that the prefix for the Tokelau Island is likely to be changed to ZEK in lieu of ZMT as at present.

Cards have commenced to arrive from YSSKU who operated from Seria, Brunei, since 1964 at the latter end of 1964. His home call is G4KU. So far the cards received relate to contacts made at the end of December last. "It hoped that Russ could come with the QSLs to the end of his period of operation in December, so writer has a personal interest in one of them.

NEW SOUTH WALES

The Annual General Meeting of the Wireless Institute (N.S.W. Division) was held at Science House, Gloucester Street, on Friday, 23rd March, before a very large gathering. The President, J. Corbin, IYC, took the chair and welcomed members and visitors present. A report was given regarding the satisfactory progress of the Co-Operative, but it was stressed that more subscriptions are still needed and it is hoped that more members will subscribe to this organisation. Please send all subscriptions as soon as possible to the Secretary.

The election of officers was conducted and resulted in the following: ZEL, 147; G Bruce, 207; J33; J. Corbin, IYC, 147; W. Lewis, 214; 143; D. Pollard, 258; 140; C. Quin, 249; 132; B. White, 2AAB, 119; R. Williams, 2AAR, 119; G. G. Ward, 147; J. Smith, 2AOC, 63. The first named seven of these candidates are thus elected for the coming year.

Following the election of officers, there was a spirited discussion on all aspects of the part played by Amateur Radio in the recent flood emergency and many aids were presented for further study by Council, where these matters will be deliberated and in turn presented by a new committee. What can be done can be followed in such an emergency. Council will welcome any further comment on council members may have on this matter.

The meeting concluded at about 10.43 p.m. and a recording was played to members, the

SILENT KEY

It is with deep regret that we record the passing of—
VK2DG—Keith Rudkin.
VK5CR—Charlie Cheel. 1st April, 1955.

VK7MR—Murray Richardson. 4th April, 1955.

description by the operator, Norm Carey, of his difficulties in establishing the Gunnedah Flood Control Station.

BAND NOTINGS

At this season of the year it is found that there is a slight exodus to Urunga, on the North Coast, N.S.W., and at the occasion of the North Coast and Tablelands Convention in a setting of this beautiful part of the State, the double impact of the recent disastrous floods, there will be many regular attenders who will be too busy to attend, but the hope is that the time to have a large gathering and a successful Convention. Zone Officer, Noel JAHH, has been in hospital recently, suffered an operation for appendicitis, but at the time of writing says that he is much improved in health and will most certainly be taking his part in the big event towards which he has done so much work.

More notes from the North Coast state that AOK-GR has also had a spell in hospital and we hope that he is also doing well. SSR has been operating portable from Yamba while on holidays and has now returned to the home QTH. Graham Long, 2AGM takes up duties at Lismore Exchange, so more will be heard from there. Blue 2AKU is another busy bee; heart of luck Blue. 2HC from Quilindri is also busy, but has literally miles of fencing down following the floods and is now getting organised. 2WT has been heard on the air, but has not yet sent a signal down here and to most parts for that matter. 2YU from Tarnworth, who formed a valuable link in emergency, expects to make the trip to Urunga also as many others from that area. Nothing heard of late from JAPS, but was in the big smoke recently.

2AEE has been heard and heard that Charlie and Doc 2LH are spending part of time on the seaboard. 2RK, Murwillumbah, we have no news of him as yet, but hope that he is all right and there and that he will be at Kyogle. Wish you fellows would drop us a line some time.

2AOK-GR is very busy with one thing and another, will all be at the Convention. DX has been busy tying up the loose ends and has been assisted at this end by IPI in no mean measure. Len and Jenn have been heard by Duck and since he is in the Forces, has a real story to tell; thanks for the letter Leth. 2AOK-GR supplies a great amount of mail, thanks Terry; is doing well up at Grafton and is OK and the rest of the boys.

From Suburban Sydney we do not hear any news normally, excepting the report by IPI, but this month we have received two reports from Vic 2AWN reporting on a function held recently at the home of Bill 2AFL. Bill and his understanding wife recently held a combined new QTH warming and "welcome home" party to that very popular new countryman—Len BOA—and his charming XYL who are back in Sydney on leave. Len of course will be remembered as 2AOK. A number of local Amateurs and their XYLs and YLs enjoyed Bill and Len's hospitality. Bill and Len and Jenn of Norfolk Island. According to Jean, Norfolk Island is a Paradise—for the time being. The view of the island from Amateurs' point of view is its popularity in the DX world. Jean has started a valuable collection of DX cards and many who are available in about 1000 square miles. You should be able to retire on the proceeds of the sale Jan.

2AOK-GR has first prize to the W boys for organised working of his station. According to Len, they queue up one behind the other and do just the right thing. The right thing I dare not tell you his pronunciation for the latest country representative—no names—no pack drill. A very enjoyable evening was had by the Bill and Len and Jenn. On behalf of the guests, thanks Bill, thanks IPI.

2AOK-GR has first prize to the W boys h.c.d., but gets around a bit at the same time. 2AKV will be in Sydney again, possibly will see Greg Show. Greg 2AKV is operating from the Sydney Show grounds, but is now in the Easter Show and will be making many contacts on 40 and 30 m. George 2AUR is going to make a live broadcast in Malay speaks Malay quite fluently also. BAPT takes on a new job, wish you luck Jack 2AKV in the new sphere, but who is he? He is in the mud salesman like George? Bert 2AGW hears and works the DX very frequently, may possibly have new location soon. Barry 2AAR, new member of Council did some work in operating 2WI; has headed north and will finish up at Urunga. 2ASW also has the same

PLATED CRYSTALS

offered by

BRIGHT STAR RADIO



46 EASTGATE ST., OAKLEIGH, S.E.12

UM 3387

LATEST MODERN EQUIPMENT

AMATEURS! BRIGHT STAR PLATED CRYSTALS WILL GIVE YOU GREATER ACTIVITY.

PRICES FROM £5/12/6.

COMMERCIAL PRICES ON APPLICATION.

BRIGHT STAR CRYSTALS may be obtained from the following Interstate firms: Messrs. A. E. Harrold, 123 Charlotte St., Brisbane; Gerard & Goodman Ltd., 192-196 Rundle St., Adelaide; A. G. Healing Ltd., 151 Pirie St., Adelaide; Atkins (W.A.) Ltd., 894 Hay St., Perth; Lawrence & Hanson Electrical Pty. Ltd., 120 Collins St., Hobart; Collins Radio, 409 Lonsdale St., Melbourne; Prices Radio, 5-6 Angel Place, Sydney.

AN OPEN LETTER

Logically, the outstanding performance of TRIMAX PRODUCTS implies that they are not always the cheapest available, but there is that assurance of long-life and efficient service which is synonymous with Trimax Quality.

In the long run, TRIMAX gives you the best value for your money . . . maintenance costs are cut . . . and performance is trouble-free and continuously efficient. Let TRIMAX solve your transformer problems.



TRIMAX

FOR TRANSFORMERS OF QUALITY

★ OUR NEW CATALOGUE IS NOW AVAILABLE. Write for your copy immediately!

CNE. WILLIAMS ROAD & CHARLES STREET, NORTH COBURG, VIC.

FL 1203

Trimax is a division of CNE & Sanding Pty. Ltd.

These Distributors have TRIMAX

VIC.
J. H. Magrath & Co. Pty. Ltd.
Howells Ltd.
Radio Paris Pty. Ltd.
Homecrafts Pty. Ltd.

N.S.W.
John Martin Pty. Ltd.
University Graham
University Graham Instruments Pty. Ltd.

S.A.
A. G. Healing Ltd.
Newton McLaren Ltd.
Radio & Electrical Wholesalers Pty. Ltd.
Gerard & Goodman Pty. Ltd.

W.A.
Nicholson's Ltd.
Atkins (W.A.) Ltd.
Cariyle & Co. Ltd.

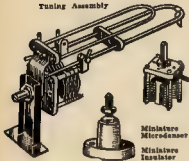
Q.L.D.
Chandlers Pty. Ltd.

TAS.
W. G. Genders Pty. Ltd.

*The call of
the Future...*

V.H.F.

145 Mc.
Tuning Assembly



WRITE OR CALL AT—

Portable Transceivers, Remote Control and Television were made practicable by the precision manufacture of reliable miniature V.H.F. component parts.

If you're planning to build V.H.F. equipment, remember you can depend upon Gerard and Goodman who have the biggest range of stock components carrying the better known brand names.

The Biggest Range of V.H.F. Components in South Australia

EDDYSTONE
ERIE
BULGIN
BELLING-LEE
DUCON
SIMPLEX

AEGIS
I.R.C.
TRIMAX
A. & R.
ACOS
TELETRON

GOLDRING
TAYLOR
ADVANCE
UNIVERSITY
MULLARD
Q PLUS

GELOSO
U.C.C.
OXLEY
PAINTON
Q MAX
AMPHENOL

GERARD & GOODMAN LTD.

192-196 RUNDLE STREET, ADELAIDE

Phone: W 1541

ELECTRONIC
A & R
EQUIPMENT

AUDIO TRANSFORMERS!

featuring ULTRA-LINEAR!

★ TYPE 921 (921-8: 2 or 8 ohms; 921-15: 3.7 or 15 ohms)

For VALVES:

907, KT66,
etc.

Suitable Conversion

"WILLIAMSON" to U.L.
See "Audio Engineering" of June,
1953.

30 WATTS: 30-30,000 s.p.a.

Primary: 5,000 ohms.

SCREEN TAPS: 10% of Plate Z.

F.R.: Pins or minus 1 db 10-50,000

s.p.a.

Leakage Inductance:

1/2P/1/2P: 18 mH. maximum.

Prim./Sec.: 20 mH. maximum.

★ TYPE 931 (931-8: 2 or 8 ohms; 931-15: 3.7 or 15 ohms)

For VALVES:

6L6, 6X5,
KT66, etc.

See "Radio and Hobbies" of Feb-
ruary, 1955, 17 watts U.L.
Amplifier.

30 WATTS: 30-30,000 s.p.a.

Primary: 4,500 ohms.

SCREEN TAPS: 10% of Plate Z.

F.R.: Pins or minus 1 db 10-50,000

s.p.a.

Leakage Inductance:

1/2P/1/2P: 18 mH. maximum.

Prim./Sec.: 15 mH. maximum.

Manufactured by . . .

A & R ELECTRONIC EQUIPMENT CO. PTY. LTD.

378 ST. KILDA ROAD, MELBOURNE, VIC.

Details from these EXCLUSIVE A & R DISTRIBUTORS!

MELBOURNE & VIC.:

J B Magrath & Co.

Fitz Ltd.

Monocraft Pty. Ltd.

Radio Parts Pty. Ltd.

Warburton Frankl Ltd.

TASMANIA:

Monocraft Pty. Ltd.

230 Elizabeth St., Hobart

SYDNEY - N.S.W.:

United Radio Distribut-

ors P/L 116 Phillip St.

Monocraft Pty. Ltd.

180 Clarence Street

SOUTH AUSTR.

Gerard & Goodman Ltd

196 Rundle St., Adelaide

QUEENSLAND:

A. E. Harrold.

122 Charlotte St., Bris.

WEST. AUSTR.

A. J. Wyle Pty. Ltd.

1411 Hay St., Perth

★ Ultra Linear—Output Type
Full power and response all inputs!
Type 918—12 watts.
Pr.: 5,000 ohms p.p. (with screen tap)
Sec.: 918-8: 2 or 8 ohms; 918-15: 3.7
or 15 ohms.

ALL IN
NEW COLOUR



LOOK FOR THE SILVER-GREY TRANSFORMER

Financially we are holding our own. A complete balance sheet will be presented at a later date in "QTC".

Our QSL services are handling some 200 to 300 cards per month, both inward and outward, and they are being handled efficiently.

Thanks to the Treasurer, Mr. J. Files, both all who supply stamps when requested. It is gratifying the support the VK3 Division has received from the 1965 event gets the support it deserves. The National Field Day had very little support last year.

Two members of the VK3 Division presented the R.D. Contest attracted about the usual lots, but the points to make a place were not too far off. The VK3 Division appears to have an interest in many VK4s and they usually score well in both these events.

The activity of the V.h.f. Group has shown a great increase, especially on 144 Mc., mainly due to the issuing of the A.O.L.E. and the increased range of V.h.f. contacts and technical receiving gear. During the year contact between Brisbane and the South Coast was made on 144 Mc. This unit was thought hopeless, but now found satisfactory; contact can be made on many occasions. An opportunity to meet with the author of the 1965 event who operated portable from Picnic Point, Toowoomba, during November with successful results. This contact was entered in the A.O.L.E. as one station is active in Toowoomba. On 23rd March, contact was made between 48T (portable at Point Danger) and 4PZ (portable at Point Danger) on 144 Mc. This was the first time a record for VK4 of 130 miles on this band, over a very difficult path.

Though without an official Manager, VK4WH has functioned satisfactorily and with a reasonable good coverage. It is now xtal controlled on 144 Mc. The VK4 Division presented last month by John 4FF, who is the controlling hand behind the mike. John 4JO being responsible for the gathering of the "QTC".

"QTC" though regular up to December, lapsed somewhat owing to holidays and illness on my part, and it is hoped the new Council will be much more successful.

The Library service is well patronised, especially by the country members. The Technical Bureau, established in 1964, has been a great generator come in for much use and one of the other are not most of the time.

Seven Council members are discussed owing to our inability to procure an instructor, but the Council hopes to get it functioning again in 1966. The V.h.f. group is active and the VK3 Division hope to be able to do something about a correspondence course for the country clubs.

In conclusion, I wish to thank Council for the work and assistance given over the last 12 months, though it has been heavy going, each of them has been a great help. I wish the Division alive. I wish the new Council every success and the fullest co-operation by all members. After much thought, I hope you to make yourselves more active on the air at your meetings and all functions, events and all the other things. I wish the new Regulations in their entirety, and last but not least, help your fellow Amateur on the air and off. It is by your actions on the air and off, that you are being so courteous and respectful in all your activities.—4XL.

TOWNVILLE AREA

Meeting on 19th February was opened by the Chairman who asked all to stand in remembrance of associate member Ray Bosanko, who died on 14th February. The meeting then turned up and better still all present brought their fees and promised to try and round up more members. After much discussion it was decided to purchase tapes for recording. A discussion took place on a film evening.

Meeting on 10th March was poorly attended. There was a rain very much, and all stood in remembrance of Mr. Stephenson (father of 4PS) and Mrs. Lock (sister of the late 4ARW). The meeting was then quickly disposed of and a lecture on Teletypes was given and enjoyed by all and are looking forward to it. It was on 15th March, the evening take place on 18th May, when it is hoped visitors from the "World" (Charters Towers) will be able to attend.

There was a rain very much on the band as most of the locals are off the air due to the wet weather. 4WH dismantled gear and lifted it about 1000 ft. The meeting was then finished. Noticed 4RW heading for Cairns to get away from the rain. 4EL heard working 48Z on 21 Mc. 4PS was on 144 Mc. 4PS gave printed. 4RW received special QSL from HK3VF, also cards from VS8HK (Sarawak) and 4H3P (Cairns). 4PS still working for DXCC c.w. certificate to come along, apparently lost in the flood. All are pleased that notes are again being printed, so what about it. The local paper has been in the news for 30 Mc. has folded up.—4RW.

SOUTH AUSTRALIA

PRO 3PS

The monthly general meeting of the VK3 Division was held as usual in the clubrooms to a very representative gathering of members and visitors. The guest speaker for the evening was Mr. Keith Main, of "Lorimer Contacts". His subject, as the name of his firm suggests was "Relayed Messages". Operation. He spoke of the earliest type of relay, the "Telegraph", as named because it relayed messages from place to place and traced its development through the years to the modern "Relay". When extraordinary developments were made and relays brought into operation controls of several relays were used. The speaker brought many samples of his wires and explained the operation of each in turn, but took up so much time that the second World War vacant space at the end of his lecture, possibly due to the envious looks of a few stalwarts in the front seats.

At question time he answered many questions from those members who anticipate a relayed control station in the near future. One thing we did learn was that the insulation was only rated around the 200 volt mark and Brian Austin now knows why his relay flashed over when asked to withstand a voltage breakdown of 500V. Another question was asked about cards made an interval between the lecture and the general business.

The monthly Civil Defence Emergency Network was brought forward by Jim 4JK and it is usual when people stick their neck out. It was placed right back in his lap by the Treasurer who visited the next Council committee to enquire into the matter. I hear that Jim, with his usual thoroughness, has much to put forward to the next Council meeting on this important matter.

The visitors present were Mr. G. P. Tuck, Mr. H. E. Green, Mr. R. Kopp, an old member in the J. Milway (VK2ZAH), our old friend and one of the VK3s of many years ago (VK2EDX) and Mr. Marshall (VK2JL) of Cremona, N.S.W. These gentlemen were given the usual "Welcome" and then the speaker by visitors to the "Division that sets the pace"—what an I saying, of fancy having to get low down on the board of the "Division" (that's not bad Mr. Editor, what you think?)

During the week an energetic committee under the guidance of the President set up quite an amount of Amateur transmitting and receiving stations for the 1965 event. A part of many displays in The Hobbies Exhibition. Many thousands of people visited the exhibition during the week. The speaker of operation and many favorable comments were received by those on duty at SWL. Giving the speaker a great deal of pleasure. It was up so much of his spare time to make the display a success.

Had the pleasure of a contact with Roy 3DA the other evening on 80 Mc. The older members will remember "Buck", and he would be glad to have a QSO with you followed on any Sunday evening, c.w. or phone. Another old time contact, regular, is Bob Grundy, whose signal has a terrific walloping locally. Bob likes phone, but I do know the old and still so good. A pleasant interlude the other evening was a visit from one of our country friends, Mr. 4ZS (Bram) who is a member of Naracorte. "Bram" has that quiet enthusiasm for Amateur Radio and the determination to "do it right". Quite a few dropping the "Z" from his present call sign.

Tom 5TL, writing from the Territory, reports that the Sunday broadcast is marred there by local ignition noises. He is apparently able to get out on 80 Mc. The speaker is Bob Grundy, whose signal has a terrific walloping locally. Bob likes phone, but I do know the old and still so good. A pleasant interlude the other evening was a visit from one of our country friends, Mr. 4ZS (Bram) who is a member of Naracorte. "Bram" has that quiet enthusiasm for Amateur Radio and the determination to "do it right". Quite a few dropping the "Z" from his present call sign.

From Mr. Gamber come the news that Stewart 5MS is organising meetings of the local Amateurs each month on a Thursday evening. It is a very good idea. The speaker of his activities; don't let that fellow Haines start, Stewart, or you will be there until the early hours of the morning. Say a word in the local paper that John 4JK has set a new venture, we wish you lots of luck John,

but would very much like to see you active on the bands again.

Les, Five-clank-Avian-Clank-Kray—5AX to you, made a very nice little vote of thanks to our lecturer at the general meeting for his talk on relays. It is refreshing to hear some of the country-suburban chaps doing their parts to make a little bit of progress. They are (you may copy that Pincoffin). Noticed a new definition of a Pincoffin: A group of the unit, spelled by the word to do the "necessary". Now I know what a lot of little dots those Council—hey what am I saying, I'm one of them.

Away to the hills, to the mecca of the punters armed with portable rx and tx went our portly CQ-pap, for an afternoon of peace and quiet. It was a very nice surprise that our CQ Portable. Great stuff this portable operation with the birds twittering and the large open space. It was referring to the countryside in case you fellows are mistaken. Our CQ and a W station, nice going this, another CQ and a ZL poke back, and then things happened. The 4X went into the bushes of slanders were calling 3PS Portable, and then Panzy woke up.

The National Field Day was on. You know the story. The 4X was a very nice surprise, pride of place in reading. Nowadays, I find myself peeping to the VK3 side to see how much has changed. The 4X was a very nice surprise. Pincoffin has shot into the hide of the local "Aga Khan". Believe me, Pinny, quite a few got under the 4X.

Two new Council members in Bruce 5OR and Lloyd 5OK were welcomed at the last Council meeting, both these chaps belong to the younger generation and should help to infuse new ideas to Council meetings to the benefit of all and sundry. When one looks round at some of the older members, particularly the minute Secretary, one can see a lot of grey headed old so and so's we have become.

Bob 5LW has often been heard bragging of his catches of fish during the Xmas vacations and I have often wondered, but true to form, he turned up the other day with projector and camera and showed us a very nice catch of fish he had caught. Some very rude person said something about silver bait and the local fishermen.

It is with deep regret that I noted the passing of yet another VK3 Amateur in Charlie Cecil, VK3CR. Charlie has been an active operator for as many years as I can remember and even until a few weeks before his death was keeping skeds on 288 Mc. His illness was painful, but his passing peaceful. To his wife and family my sincere condolences.

Activity around Mt. Gamber seems to be at an all-time low, but more activity is promised in the future. Both 5CJ and 5KU have been "sogged" but not active as usual; this also includes 5MS. Most of the activity around Mt. 5ZAG showing great enthusiasm, using 14W, to 52Z. He is hoping to contact VK3 as soon as he gets his antenna going. Bruce 5OR with his converter, which is getting lined up, he should soon be radiating a strong signal. 5MS is still active, but not as much as usual. He is building an antennae and hopes to tune his beam over Easter. Managed to get on the right side of the "X" by rebuilding the box set. What will Panzy say to that—Ed.).

TASMANIA

The Tasmanian Division's Annual General Meeting and Dinner was held in the Institute's hall at 10.30 on 28th March. The meeting was well attended, the only regret being that none of the Northern members could attend. The 1965 was a very successful trip. Our Patron is Mr. J. A. Crooks, and the following Councillors were elected by ballot: Messrs. T. Allen, J. Brown, T. Evans, D. Fisher, R. Fulton, J. Harrison, and G. Watson. Financial Councillor, Mr. J. Brown. Auditors, Messrs. R. D. O'Malley and G. R. Richardson.

The following non-executive officers were selected by coak, pokes and jokes. Treasurers: Messrs. W. Watson and L. Jensen. President: Mr. J. A. Crooks. Divisional Secretary: Mr. J. V. F. D. O'Malley. Sub-Editor: Mr. C. Wright. Broadcast Officer: Mr. T. Allen, who is to carry on until VKTWT can be operated and a new set. What will Panzy say to that—Ed.).

At the first meeting of the new Council, held on 1/4/55, Mr. F. J. Evans was elected President, Messrs. C. Harrison, J. Brown, and G. Watson as Vice-Presidents, and Mr. W. G. Tait, as Secretary.

The Annual Meeting was followed by a Buffet Style Dinner (plus liquid refreshments), which was donated by the one and only Joe. During the course of the evening, the Superintendent of the Wireless Branch, Mr. P. E. Dunne, was presented with a certificate of Honorary Life Membership by the President Mr. L. Edwards.

On the following Sunday a Picnic and Field Day was held near Ponville. I say near Ponville, because I didn't see any sign of it on the Tip. I feel that he is either biased, or perhaps he spent a lot of time on the sold to him. I don't know. The fact is, 3000 were hidden in the afore-mentioned Tip by those two crafty gents—TJF and TJF—and the ensuing search produced results which were quite up to expectations. TJF's efforts to climb a hill of tins, etc., were likened unto that of a man who tries to navigate an escalator which is running in the wrong direction. I actually requested me to quote him as saying that the tx was hidden in the appropriate place! Could that be a hot tip?

Bob and Lon, using 80 mc, would probably be going still (batteries permitting) had they not eventually realised that they were tracking the wrong signal. The tx's were found by T.L., followed by TJF and then Ned Watson. I.e. first, second and third. The Hunt concluded with the presentation of a rather ornate "mug" to Dave Hillary, who may be known as the Hillary Perpetual Trophy.

Doug (AB), formerly of Devonport, is now residing in Hobart, and welcome you to the Southern ranks. Doug, Trust you will find all things to your liking down this way. The local Devonport Amateurs are doing a wonderful job. They are doing a fine job of running the Devonport Fire Brigade with radio equipment. To date a base station and one vehicle equipped with a mobile transmitter, satisfactorily on 2.895 Kc. Congrats chap, fine effort.

TRY and TWG are right in the throes of home building and Amateur Radio is, of necessity, at low ebb. But, with rather a good year to both on the joys of parking, but you will have to get it from them personally. TRY is constructing a new antenna tuning unit for bigger and better size, and TML a new antenna rx, the latter to be adorned with an escutcheon featuring two squirrels. Before closing, I would like to express the Institute's thanks to T.L. for the most creditable way in which he has carried out the printing of QSL cards, menus, etc. Many thanks Lon for a really first-class Editorial to the effect that if we wish to hold the bands we now have, we must populate them!

NORTHERN ZONE

March was one of the most active months for quite a long time. Firstly, there was the Annual Meeting at the President's home, and then in the previous 13 months we had had 13 meetings (lectures and visits) plus eight hidden tx hunts. Obviously some members were very busy over our activities as the only change made was to elect TFF as v.h.f. officer. T.L., who has done this as well as QSLs for some years, would not devote sufficient time to both jobs. The 1955 officers are: President, TRY; Vice-President, TGM; Secretary, TLX; V.h.f. Officer, TML; TLZ; Activities, TXW; Correspondent, TCA.

During the month great activity occurred in re-building 2 mc "personal portables" for hidden tx hunts, but even so, TCA was the only one in the Amateur Radio Club. The President's home took place in March. For the first time the tx went to a hill at Patene, a few miles outside Devonport. T.L. and TML were the first to find the tx in 61 minutes, followed by TGM with TRY, about 25 minutes later. For the second time the tx was found in the same area, the location being at Associate Ron Rich's house. This was one that wasn't found so the tx had another win. On the last, the tx was high up in a tree, and the only one looking the place, named Woodlands Grove. Despite pouring rain and inky darkness, Geoff managed to find the tx in 22 minutes, followed by T.L. and TML in 22 minutes, whilst T.L. and brother Ian, Max Fraser and YL came in shortly afterwards. Cheers to the open air development.

Towards the end of the month the zone lost a very good friend with the passing of Mr. C.

WIRESMEN REQUIRED FOR RADIO MANUFACTURE

Junior and Senior Radio Wiresmen required for five-day 40-hour week, above award wages and good working conditions on interesting variety of electronic equipment. Ring Mr. Hunter at Tel. 1300 or call on write to Zephyr Products Pty. Ltd., 58 High St., Glen Iris, Vic.

J. Greaves, former Supervising Technician at Launceston Exchange. He was always ready to help in any way he could. We all regret his passing.

NORTH WESTERN ZONE

Once again, it is apparent that Burnie is the doorway to Tasmania as in the last couple of weeks John SWY and Crief ZXO have left here for the mainland after touring our island. I believe John has been getting some practical experience in mining at Queenstown.

On 14th March a combined meeting of the zone was held at Devonport in the Fire Brigade Hall, the occasion being to farewell Doug TAB, who has been transferred to Hobart. A presentation of an electric clock was made to Doug on behalf of the zone. George TXL was elected to the office of President of the zone. A demonstration was given by the Fire Brigade members of the two-way radio system recently built and installed by seven zone members of the zone. Supper and liquid refreshments were served by the Devonport members and was enjoyed by all. Present at the meeting were TAB, TXL, YJP and TJO from the Devonport area, YDR of Ulverstone, YDM, K. Hancock, YR and YSF and A. Mettett from Burnie. The evening has been rounded off with a vote of thanks to the Fire Brigade.

TAI has nearly completed his new rx to take all rx's, but is experiencing much difficulty in removing the cascades from his variable IF system.

It is with deep regret that we record the passing of a long time zone member, VK7MR, on 4th April, 1955. Murray was a great loss to the Institute as besides being one of the founders of the North Western Zone, he gave his services as Instructor for the Zone's A.O. C.P. classes and was always available to give help and technical advice where required.

NEW GUINEA-PAPUA

The first general meeting of the newly formed VK9 Division took place on Sunday, 5th

HAMADS

1/- per line, minimum 3/-.

Advertisements under this heading will only be accepted from Institute Members who desire to dispose of equipment which is their own personal property. Copy must be received by 8th of the month, and remittance must accompany advertisement. Calculation of cost is based on an average of six words a line. Donors' advertisement not accepted in this column.

AR7 Handbook required by W6LJC. Please contact Harry C. Hatton, 18 Irene St., Waremba, N.S.W.

AR7, H.R.O., or National Type Dial wanted urgently. K. A. Chaplin, Apollo Bay, Vic.

FOR SALE: BC348 converted 6.3 volt operation, Noise Limiter, £35. G. Coventry, Nell St., Greensborough, Vic. Phone: JF 1587.

FOR SALE: LM10 Crystal Calibrated Freq. Meter, complete with Calibration Charts. AMR200 Com. Receiver. Offer by letter only, T. D. Hogan, 321 Elizabeth St., East Coburg, Vic.

FOR SALE: Type A Mk. III, T.A./R, 3-9 Mc, complete mod. and P.S.U., £15. Marconi Xtal Cal. Unit, 10, 100, 1,000 Kc. (less P.S.U.), £10. Precision 1 Rev. per day Sync. Motor, £2/10/-, Meters, Xtals, Valves, Transformers, Books; cheap. McRitchie, Box 107, Whyalia, S.A.

FOR SALE: Xtals 3.5 Mc—9 Mc, many frequencies £1 each. S.A.E. for full list. T. R. Naughton, Birchip, Vic.

FOR SALE: 25 watt 5 Band Transmitter. Edgystone S880/2 Receiver. 5" C.R.O. 6v. 40w. Inverter. Field strength Meter 3 to 40 Mc. TA12D. Two 2,300 Mc. Transceivers. ASB4 Receiver. 109 Mk. II Transmitter. Mounted on chassis 16 x 10: Transformer 500, 600, 750, 850 and 1,000 volts per side 300 Ma. Trans. 2.5v. 10a. Choke 90 ohms 5-20 H. 300 Ma., all new. Don R Handset. 30-0-30

March, and after quite a debate, the election of officers was held. This resulted in Frank 877 being elected as our first President. Congrats Frank! Ron 9RC and Bill 9BW were voted in as Vice-Presidents. Busy man of the Division will be 9CQ, who is holding the Secretary's chair. Finance will be in the capable hands of 9VW, a newcomer to VK9. Geoff has our good wishes and we trust he enjoys the work existing in this part of the world, not to mention the DX which sometimes comes our way. "Double Brandy", Doug, to whom I have already mentioned, is a newcomer and we all feel sure it could be in no more capable hands. Scribe will be 9BW.

Due to the great distances between centres all meetings are held "on the air" usually on 7080 Kc. Sunday morning at 1000 hours find most VK9s on frequency and discussing various aspects of Amateur Radio. VK9s in Papua, New Guinea and New Ireland are welcome and we look forward to a good roll up every Sunday. Don't forget gang. 7080 Kc. every Sunday at 1000 hours.

9SP heard one Sunday night on 20 mc knocking over Europeans one after another. The gang at Rabaul, 9WP, 9BS, 9RG, and 9BW are installing a new 20 mc rx, usually on 14.400 Kc. available on the market. 9RM and 9RC are busy teaching youngsters the joys or otherwise of Amateur Radio. Good luck fellows! 9AU is working on 20 mc and heard frequently on 14.400 Kc. 9BS a 15 mc addict, and getting contacts. 9WP almost W.A.C. with 4 watts. Nice work fellows! 9VW is heard frequently on 20 mc every month, so drop a line to Box 76, Rabaul, and let us know what's doing on the bands.

9BW on c.w. on 7 Mc. and getting some DX now and then. Doug, 9DB back on the job and the fellow spot heard frequently on 14.400 Kc. what have you been doing Frank? Nothing heard of Kavieng gang for some time. What's doing over there? 9GL Bureau for VK9 Papua New Guinea Division C/VK9DB, P.O. Box 107, Port Moresby. Conditions on 15 and 20 mc very poor. Nothing much doing after 1st July. Be with you again next month gang. 73.

D.C. Ampmeter, W. & G. dual face Slide Rule M432. Philips Technical Review Volumes 8, 10, 11, 12, 13, 14, 15; Vol. 8 No. 3 and 8 to 12; Vol. 14 No. 5. Electronic Application Bulletin Vol. 15 No. 1/2 and 3. Communications News Vol. 10, 11, 12, and 13; Vol. 14 No. 1 and 2. Admiralty Handbook of W/T Vol. 1 and 2. Philips Manual of Radio Practice 1947. Electrical Engineer Reference Book, News. Handbook of Technical Instruction for Wireless Telegraphists seventh edition, Iliffe. Electronics Dictionary, 1945, McGraw-Hill. Broadcast Designers' Handbook, fourth edition, Macmillan. Elements of Radio Engineering, Terman. Wireless Direction Finding, Keen. Practical Radio Communications, second edition, Nilson & Hornung. The Encyclopedia of Radio & Television, 1950, Odhams. Audley's Practical Electricity. Audley Radioman's Guide. Armature Winding, Drunkall. Armature Winding & Motor Repair, McGraw-Hill. Experimental Radio Engineering, Rapson. Frequency Modulation, Rider. Radio at U.H.F., R.C.A. Radiolocation Simply Explained, Hallows. Elementary Trigonometry, Parts 1 and 2, Bell. 3 Philpot Street, East Geelong, Vic.

SELL: RF24 Converter, new, modified for 15, 11 and 10 metres. I.F. 7.8 Mc. Jones, 25 Panoramic Rd., N. Balwyn, Vic.

WANTED: Three 3BZ Transmitters, good or repairable condition. J. Belcher, 43 Robert St., Bentleigh, S.E.14, Vic. Phone: XU 2908.

Homecrafts

PTY LTD

AMATEURS'
BARGAIN
CENTRE ★

The New B.J.

PICK-UP ARM

Fits Decca Heads and with Adaptor
fits GP19 and HGP39 Heads.

83/4 plus tax.

TEST EQUIPMENT by ADVANCE of ENGLAND

P1 SIGNAL GENERATOR

100 Kc. to 100 Mc. in six ranges
on fundamentals.

£33/5/- plus tax.

TEST EQUIPMENT by TAYLOR of ENGLAND

MODEL 77A MULTIMETER

20,000 ohms per volt. 24 Ranges.

£26/16/6 plus tax.

CATHODE RAY TUBES

Type 1CP1 1" Tube.

As used in R. & H. Oscilloscope.

78/6 plus tax

Type 5BP1 5" Tube.

As used in R. & H. Oscilloscope.

35/- plus tax.

Homecrafts for all High Quality Audio Equipment: WILLIAMSON AND LEAK AMPLIFIERS WHARFDALE AND BAKER SPEAKERS THORENS MOTORS AND PLAYERS

Vented Enclosures — Speaker Divider Networks

Write for Quotations on anything connected with Hi Fidelity Sound

WINDING WIRE

Now in Stock.

4 oz. Reels.

18 gauge S.W.G. Enamel

20 gauge S.W.G. Enamel

22 gauge S.W.G. Enamel

26 gauge S.W.G. Enamel

2/6 plus tax.

Build your Own

CLOCK RADIO

Smith Electric Clock, complete with
wiring diagram.

84/4 plus tax.

SPEAKER TRANSFORMERS

200 ohms to 2 ohms.

1/- each

Rear Bumper

CAR AERIALS

29/11

ELECTROLYTIC CONDENSERS

300 uF. 12 volt ... 5/- doz.

8 uF. 350 volt ... 1/11 each

SPEAKER TRANSFORMERS

8,000 ohms to 3-7 ohms.

4/11 each

ASSORTED BEZELS

8/- dozen

INSTRUMENT CASES

Sloping front, 9" x 8" x 6".

20/- each

290 LONSDALE STREET, MELBOURNE

FB 3711



ERIE RESISTORS..



ERIE RESISTORS COST NO MORE

and are available from stock throughout Australia through Selected Wholesale Houses in all States.

Useful Technical Data is available on request.

**THE RESISTOR WITHOUT
A DOUBT—FIT ERIE AND
BE SURE!**

THE ONLY FULLY INSULATED RESISTOR WHICH IS **CERAMIC ENCASED**

to protect the carbon element from direct contact with paint, lacquers and other finishes which have a detrimental effect under extremes of temperature.

★ Made in England, Canada, and the U.S.A. to stringent Inter-Service Specifications.

★ Erie Standard Solid Moulded Carbon Resistors also conform fully to R.C.S.C. Specification BS/RCS/112 Grade II.

Only the best in materials and manufacturing methods go into these Resistors. They are made to give maximum heat dissipation—low noise content—and to keep stable values throughout their long service life. All types are conservatively rated and are available throughout the entire preferred value range.

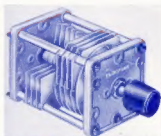
V.H.F.'s. DEMAND GOOD TUNING

For many years EDDYSTONE has offered the Amateur an excellent range of low loss, high performance transmitting and receiving variable condensers. Every need of the Experimenter is now catered for in Differential, Neutralising, Butterfly, Split-stator, and High Stability Single Section Eddystone Condensers of solid construction employing heavily silver plated brass plates and ceramic end plates.

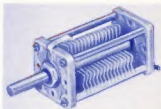
Your Distributor will be pleased to show you the full range of Eddystone Condensers and forward a Catalogue on request.

EDDYSTONE TRANSMITTING AND RECEIVING CONDENSERS

SOLE
AUSTRALIAN
AGENTS:



Ext. 835—50 x 20 pF. max. Transmitting. 0.000 inch spacing. 7,500 volts.



Ext. 735—100 pF., 0.000 inch spacing. Double end plates and bearings.



Ext. 815—60 pF. max. Transmitting. 0.010 inch spacing. 1,000 volts.



Ext. 585—15 x 15 pF. Butterfly Type. 0.002 inch spacing.

R. H. CUNNINGHAM PTY. LTD.
118 WATTLETREE ROAD, ARMADALE, S.E.3, VIC.
and 184 VICTORIA ROAD, DRUMMOYNE, N.S.W.